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Revision of the austral South American species of *Mortoniella* (Trichoptera: Glossosomatidae: Protoptilinae)

ROGER J. BLAHNIK & RALPH W. HOLZENTHAL
Department of Entomology, University of Minnesota, 1980 Folwell Ave., 219 Hodson Hall, St. Paul, Minnesota, 55108, U.S.A.
(blahn003@umn.edu; holze001@umn.edu)

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Abstract

Species of *Mortoniella* are revised for the southern part of the South American continent, including the countries of Brazil, Paraguay, Uruguay, Argentina and Chile. The *M. velasquezi* species group is diagnosed for the first time and the *M. bilineata* species group is more critically defined. Males of all species from the region, except *M. armata* (Jacquemart, 1963), are figured, and a key is provided for their identification. Included in the revision are 11 described species and 22 new species. Previously described species that are redescribed and figured include the following: *Mortoniella albolineata* Ul-

mer, 1907; *M. argentinica* Flint, 1974; *M. catarinensis* (Flint, 1974); *M. collegarum* (Rueda & Gibon, 2008); *M. guairica* (Flint, 1974); *M. ormina* (Mosely, 1939); *M. pocita* (Flint, 1983); *M. punensis* (Flint, 1983); *M. teutona* (Mosely, 1939); *M. unota* (Mosely, 1939); and *M. wygodzinskii* (Schmid, 1958). *Mortoniella collegarum*, originally described from Bolivia and Argentina, is here reported from Chile, representing the first distributional record of *Mortoniella* for that country. It is assigned to the *M. ormina* species group. On morphological considerations, *M. argentinica* is removed from the *M. bilineata* species group and left as a species *incertae sedis* as to species group. Based on its overall similarity to *M. argentinica*, *M. spinulata* (Flint, 1991), from Colombia, is removed from the *M. leroda* species group and left as a species *incertae sedis* as to species group. New species of *Mortoniella* described here, followed by their respective areas of distribution, include, for the *M. leroda* species group: *Mortoniella* ***acauda*** (SE Brazil), *M.* ***agosta*** (SE Brazil), *M.* ***asymmetris*** (Paraguay), *M.* ***crescentis*** (SE Brazil), *M.* ***dolonis*** (SE Brazil), *M.* ***guahybae*** (SE Brazil), *M.* ***hystricosa*** (SE Brazil), *M.* ***intervales*** (SE Brazil), *M.* ***latispina*** (SE Brazil), *M.* ***longispina*** (SE Brazil), *M.* ***paraguaiensis*** (Paraguay), *M.* ***parauna*** (SE Brazil), *M.* ***paraunota*** (Argentina, SE Brazil), *M.* ***pumila*** (SE Brazil), *M.* ***pusilla*** (SE Brazil), *M.* ***truncata*** (SE Brazil), and *M.* ***uruguaiensis*** (SE Brazil, Uruguay); for the *M. ormina* species group: *M.* ***alicula*** (SE Brazil); and for the *M. velasquezi* species group: *M.* ***bocaina*** (SE Brazil), *M.* ***froehlichi*** (SE Brazil), and *M.* ***tripuiensis*** (SE Brazil). A new species unplaced as to species group is *M.* ***meloi*** (SE Brazil).

Key words: *Mexitrichia*, new species, caddisfly, Neotropics, key

Introduction

This paper represents the second in a series whose ultimate goal is to revise all of the species of *Mortoniella* formerly placed in the genus *Mexitrichia*. The first paper in the series revised the species from Mexico and Central America (Blahnik & Holzenthal 2008). In the same paper *Mexitrichia* was synonymized with *Mortoniella* and a revised generic description was provided for the genus. The described species of *Mortoniella* were placed into 4 species groups, except for 2 species that were left as species *incertae sedis*, including 1 species, *Mortoniella guairica* (Flint, 1974) from the area of coverage of the current paper. The *M. bilineata* species group includes those species placed in *Mortoniella* before *Mexitrichia* was synonymized with it. These 22 species were reviewed by Sykora (1999), including 9 species newly described within the same paper. Sykora "tentatively" placed these taxa into 5 species groups. Only 2 of these species, *M. wygodzinskii* (Schmid, 1958) and *M. argentinica* Flint, 1974, have distributions within the area of coverage for this paper. They were refigured in a recent paper by Rueda & Gibon (2008), treating all of the known species of Protoptilinae from Bolivia and northwestern Argentina. In an initial assessment of the *M. bilineata* species group in our previous paper (Blahnik & Holzenthal 2008), based on an examination of representatives of 4 of the 5 species groups recognized by Sykora, we proposed that the group represents a monophyletic assemblage. Because of this and because of the recent treatment of this group, it was not our original intention to include species of the *M. bilineata* species group in the current paper. However, an examination of *M. argentinica,* type species for the 5th species group recognized by Sykora, revealed that it is distinctly different from other species of the *M. bilineata* species group and was undoubtedly misplaced in this group. This prompted a reevaluation of the entire *M. bilineata* species group, even though the majority of the species in the group do not fall within the area of coverage of the current paper. This reconsideration was based largely on illustrations and descriptions of the species provided in the literature. It reaffirmed the essential validity and homogeneity of the group as a whole, but also suggested that a couple of additional species now placed in the group may be misplaced here. In order to define the *M. bilineata* species group more clearly, we have included a discussion of the characters defining the group, including an illustration of the female of *M. bilineata* Ulmer, 1906. The latter was included because the distinctive morphology of the females of this group has not previously been illustrated. *Mortoniella argentinica* has been removed from the *M. bilineata* species group and for now is left as a species *incertae sedis* as to species group. Character evidence for this decision is included in the species description for this species and also in the discussion of the *M. bilineata* species group. For similar reasons, *M. spinulata* (Flint, 1991), currently placed in the *M. leroda* species group, is also listed as *incertae sedis*, due to its overall similarity to *M. argentinica*. Although the other species that may be misplaced in the *M. bilineata* species group are discussed, their explicit removal is deferred until we have had a chance to examine them.

As a result of the reevaluation of the *M. bilineata* species group, all known species of *Mortoniella* for the austral part of South America, including Brazil, Uruguay, Paraguay, Argentina, and Chile, have been included in the current work, illustrated or reillustrated, described, and treated in the key provided, with the sole exception of *M.*

armata (Jacquemart, 1963). The latter species was not refigured because the holotype was reported as missing from the type slide mount (Flint *et al*. 1999) and there are no subsequent reports of the species in the literature. However, it is included in the key provided, based on characters given in its original description. Most of the species included in the current paper belong in the other 3 species groups of *Mortoniella* recognized by Blahnik & Holzenthal (2008), the *M*. *leroda*, *ormina*, and *velasquezi* species groups, with the exception of *M. guairica* (Flint, 1974) and 1 new species from Brazil, which remain unplaced to species group.

With the description of 22 new species in the current paper, the total number of species of *Mortoniella* now known from the region of coverage is 34, and the total number of species in the genus is 96. The 3 new species from Brazil in the *M*. *velasquezi* species group represent a significant range extension for this group, which is based on a single species originally described from Colombia. However, an undescribed species in this group was reported from Peru by Flint (1996) and a recently described species from Bolivia, *M. eduardoi* (Rueda & Gibon, 2008) also belongs in this group. The record of *M. collegarum* (Rueda & Gibon, 2008) from Chile represents the first record of *Mortoniella* from that country. This species is a member of the *M*. *ormina* species group.

Most of the new species described here were collected during a project to survey the caddisfly diversity of southeastern Brazil. It is probably not coincidental that most of the diversity for the austral region of South America recorded here is from this region. Judging by the number of species known from only a few specimens, and the additional diversity encountered even at the close of the survey, it is likely that a number of additional species will be encountered in even this relatively well-surveyed region. For the rest of Brazil and most of the other countries from the southern part of South America, relatively few species of *Mortoniella* are currently known. It is unlikely that this is an accurate reflection of the real diversity for the area and probably the true number of species for this region is extensive.

The majority of the species described in this paper are in the *M*. *leroda* species group. As for the species from Central America, those from the austral part of South America are placed into a several subgroups. This placement should be considered an informal prelude to a more formal phylogenetic analysis of species. It is presented here as a way of pointing out distinctive character similarities between the species described. Despite its informality, it is believed that the species subgroups presented here represent natural, monophyletic groups. Characters supporting the monophyly of the subgroups are briefly discussed, as well as those supporting relationships among some of the taxa within subgroups.

Materials and methods

Techniques and procedures used in the preparation and examination of specimens are those outlined by Blahnik & Holzenthal (2004). Terminology follows that established by Blahnik & Holzenthal (2008), and is illustrated in Fig 1A. Illustrations were rendered in Adobe Illustrator® and standardized so that similar structures in different species can be easily compared. As in our previous paper, presumptively associated females, those collected at the same time and place as males and with a similar size and coloration, are listed under the material examined for each species. However, because of the large number of species occurring at some sites, it is possible that some specimens may be incorrectly associated. Each pinned specimen, or lot of specimens in alcohol, examined during the study was barcoded (4 mil polyester, 8 x 14 mm, code 49) with a unique alphanumeric sequence beginning with the prefix UMSP. The prefix is not meant to imply ownership by the University of Minnesota Insect Collection, but only to indicate that the specimen was databased at that collection. Specimen collection data are stored in Biota® (v. 2.0 Sinauer Associated, Inc.) (Colwell 2003). Specimen barcode information is included for holotypes in the list of material examined. A detailed list of all material examined, including barcode numbers is maintained at UMSP and can be downloaded from http://www.entomology.umn.edu/museum/database/BIOTAdatabase.html.

Holotypes are deposited in the Museu de Zoologia, Universidade de São Paulo, Brazil (MZUSP) and the National Museum of Natural History, Smithsonian Institution, Washington, D.C. (NMNH). Paratypes are deposited in the same institutions, as well as in the University of Minnesota Insect Collection, St. Paul, Minnesota (UMSP), as designated in the species descriptions.

Species descriptions

Mortoniella leroda species group

Mortoniella albolineata subgroup

Most of the new species described in this paper are included in this newly recognized subgroup of the *M. leroda* species group. Previously described species in this subgroup include *Mortoniella albolineata* Ulmer, 1907; *M. teutona* (Mosely, 1939); and *M. unota* (Mosely, 1939). As in the other species subgroups recognized for Brazil, species in this subgroup are characterized by a reduced hind wing venation (only fork II present) (Fig. 38A), and also by an additional set of male genitalic characters, including the following: Fused inferior appendages with dorsally upright lateral lobes; phallotheca with well developed, but variably shaped, dorsolateral processes; endophallic membrane with a single stout ventral spine and without sclerotized phallotremal spines; and tergum X with a V-shaped or U-shaped mesal excision and without an apicomesal projection. None of these characters is unique to the *M. albolineata* subgroup. That the subgroup is a natural one is evidenced by the close similarity of the species to one another; indeed, many are only reliably distinguished by characters taken in combination. Most of the species have a typical 0:4:4 spur formula, but a few of the smaller species have a 0:3:4 spur formula. This character is also found in the *M. pumila* subgroup, as discussed below, as well as in the *M. ormina* species group. The *M. albolineata* subgroup as a whole shares character similarities with both the *M. leroda* and *M. florica* subgroups from Central America (Blahnik & Holzenthal 2008), both of which, however, have both forks II and III in the hind wing present, as well as having a rather characteristic sinuous inflection of the dorsal phallic spine. All of the species of the *M. albolineata* subgroup have dorsolateral processes on the phallicata that seem to function as lateral guides for the paramere appendages, a common attribute for species of the *M. leroda* group in general, and a consistent character of the *M. florica* subgroup, but members of the *M. albolineata* subgroup always lack an apicomesal projection of tergum X. Many of the species of the *M. albolineata* subgroup have inferior appendages with an asymmetric ventromesal projection, as in members of the *M. leroda* subgroup, but this does not seem to indicate a necessary close relationship of species in the 2 subgroups and does not even seem to circumscribe an inclusive clade for members of the *M. albolineata* subgroup with the character.

Mortoniella acauda, new species

Fig. 1

Mortoniella acauda is apparently related to a group of species, including *M. albolineata*; *M. dolonis*, n. sp.; *M. latispina*, n. sp.; and *M. teutona*. Character similarities for this group are presented in the diagnosis for *M. albolineata*. All of these species have a dorsal phallic spine with a depressed, apically rounded, somewhat spatulate apex, and an endophallic membrane with distinct membranous lobes. *Mortoniella acauda* differs diagnostically from all the other species in this group by lacking a ventromesal projection on the fused inferior appendages; additionally, the apicomesal excision of tergum X is distinctly wider than in any of these other species. Like *M. latispina* and *M. teutona*, *M. acauda* lacks scale-like setae on its hind wings. Also like those species, it has a short, curved endophallic spine and elongate paramere appendages that are somewhat widened preapically.

Adult. Length of forewing: male 3.2 mm. Forewing with forks I, II, and III present, hind wing with fork II only. Spur formula 0:4:4. Overall color yellowish-brown. Legs yellowish, tibial spurs darker in color, contrasting with legs. Wing bar at anastamosis relatively indistinct, interrupted, marked with whitish setae.

Male genitalia. Ventral process of segment VI laterally compressed, ventrally projecting, subtriangular, wide basally, acute apically. Segment IX nearly evenly rounded anterolaterally, length greatest midlaterally, posterolateral margin weakly convexly rounded dorsally, narrowing ventrally; segment deeply excised dorsomesally and ventromesally, forming lateral lobes, lobes separated dorsomesally by much less than 1/2 width of segment. Tergum X with very wide, uniformly rounded mesal excision; lateral lobes moderately elongate, apices rounded as viewed dorsally, subacute as viewed laterally. Inferior appendages fused, without ventromesal projection; laterally, on each side, with setose, tapering, dorsally-directed lobes. Mesal pockets of fused inferior appendages with apical

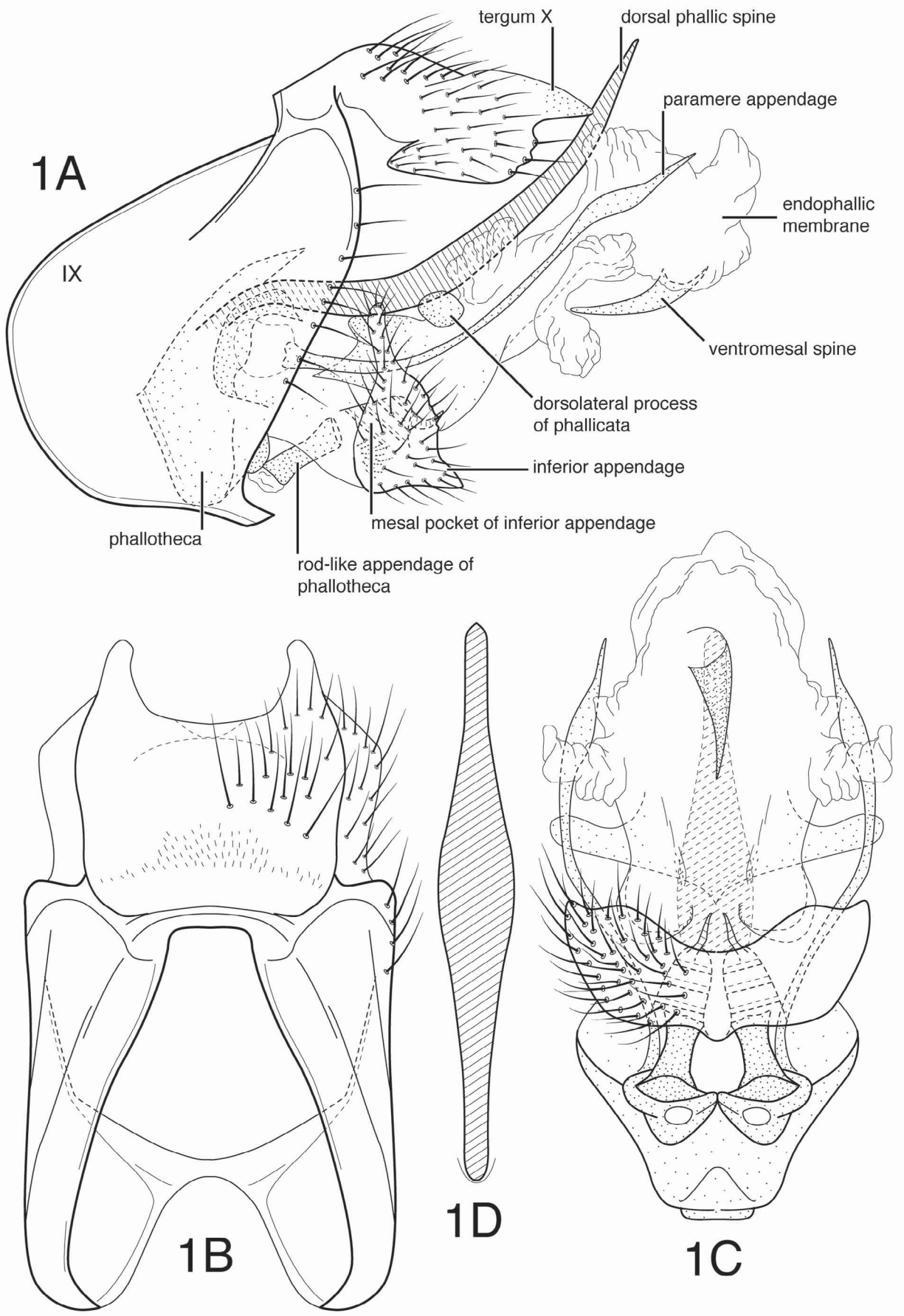


FIGURE 1. *Mortoniella acauda*, new species, male genitalia: A—lateral; B—segment IX and tergum X, dorsal; C—phallic ensemble, ventral; D—dorsal phallic spine, dorsal.

processes short, dorsally curved. Paramere appendages elongate, slender, slightly widened in apical 1/4th, apices acute. Dorsal phallic spine, as viewed laterally, with basal part more or less uniform in width, upturned near base, more strongly in apical 1/3rd, apex narrowed and acute; in dorsal view, somewhat widened in middle, apical 1/3rd narrow, apex rounded, spatulate (depressed). Phallicata with sclerotized, anteriorly directed process subtending dorsal phallic spine, and elongate, narrow, projecting lateral processes. Endophallic membrane with membranous dorsal lobe, paralleling dorsal phallic spine, membranous lateral lobes on either side, and sclerotized ventromesal spine; ventromesal spine short, curved, apex acute; phallotremal spines absent.

Holotype male: BRAZIL: Santa Catarina: Urubici, Cachoeira Avencal, 28°02'50"S, 049°37'00"W, 1260 m, 6.iii.1998, Holzenthal, Froehlich & Paprocki (UMSP000068088) (pinned) (MZUSP).

Etymology. This species is named *M. acauda*, without a tail, from the Latin word *cauda* or tail and referring to the absence of a narrow, ventromesal projection from the fused inferior appendages, which characterizes the group of species to which it appears to be most closely related.

***Mortoniella agosta*, new species**
Fig. 2

This species is easily distinguished from other members of the *M. albolineata* subgroup by the distinctive dorsolateral processes of the phallicata, which are very distinctly sclerotized, elongate and arm-like. Other characters, useful in combination for separating it from members of this group include the following: Fused inferior appendages without a distinct ventromesal process; endophallic spine relatively elongate and nearly straight apically; paramere appendages elongate, slightly widened preapically; and tergum X with a V-shaped mesal excision. Specimens from Minas Gerais have the dorsolateral processes of the phallicata more rounded apically (Fig. 2D) and less angularly bent, as viewed ventrally (Fig. 2E). The basal part of the tergum X in these specimens also seems to be somewhat more bulbously rounded, as viewed laterally. These differences, while apparently constant for the geographic areas compared, are also relatively minor. There also seems to be some variation in these characters even within populations; we consider this variation to be intraspecific.

Adult. Length of forewing: male 3.1–4.1 mm, female 3.5–4.4 mm. Forewing with forks I, II, and III present, hind wing with fork II only. Spur formula 0:4:4. Overall color dark brown. Legs brown, apices of tarsi whitish, tibial spurs somewhat darker than legs, but not strongly contrasting in color. Antennae with apical part of basal antennal segments whitish. Wing bar at anastamosis relatively indistinct, interrupted, marked with whitish setae, more strongly developed at arculus on anal margin.

Male genitalia. Ventral process of segment VI laterally compressed, ventrally projecting, subtriangular, wide basally, rounded to subacute apically. Segment IX nearly evenly rounded anterolaterally, length greatest midlaterally, posterolateral margin forming rounded to slightly angular projection dorsally, narrowing ventrally; segment deeply excised dorsomesally and ventromesally, forming lateral lobes, lobes separated dorsomesally by much less than 1/2 width of segment. Tergum X with broad V-shaped mesal excision; lateral lobes moderately elongate, apices subacute. Inferior appendages without ventromesal projection; laterally, on each side, with setose, tapering, dorsally-directed lobes. Mesal pockets of fused inferior appendages with apical processes short, dorsally curved. Paramere appendages elongate, narrow, slightly widened in apical 1/3rd, apices acute. Dorsal phallic spine, as viewed laterally, with basal part more or less uniform in width, strongly upturned in apical 1/2, apex narrowed and acute; in dorsal view, slightly widened in middle, apex narrowly acuminate. Phallicata with distinctly sclerotized dorsolateral processes and lightly sclerotized, rounded, apicolateral lobes; dorsolateral processes very elongate, arm-like, ventrally curved, apices rounded or subacute. Endophallic membrane with prominent, sclerotized ventromesal spine; ventral spine elongate, curved at base, apex nearly straight; phallotremal spines absent.

Holotype male: BRAZIL: Rio de Janeiro: Rio Macaé, Macaé de Cima, 22°23'41"S, 042°30'08"W, 1000 m, 8.iii.2002, Holzenthal, Blahnik, Paprocki, & Prather (UMSP000085777) (pinned) (MZUSP).

Paratypes: BRAZIL: Minas Gerais: Parque Estadual do Itacolomi, trib. to Rio Belchior, 20°25'18"S, 043°25'42"W, 700 m, 6.xi.2001, Holzenthal, Amarante, Blahnik, & Paprocki — 1 male, 3 females (alcohol) (MZUSP); Corrego das Aguas Pretas & tribs., ca. 15 km S Aiuruoca, 22°03'42"S, 044°38'14"W, 1386 m, 21.xi.2001, Holzenthal, Blahnik, Neto, & Paprocki —1 male, 42 females (pinned) (UMSP); Parque Estadual de São Gonçalo do Rio Preto, Córrego das Eguas, 18°08'43"S, 043°22'09"W, 891m, 14.x.2000, Paprocki, Amarante &

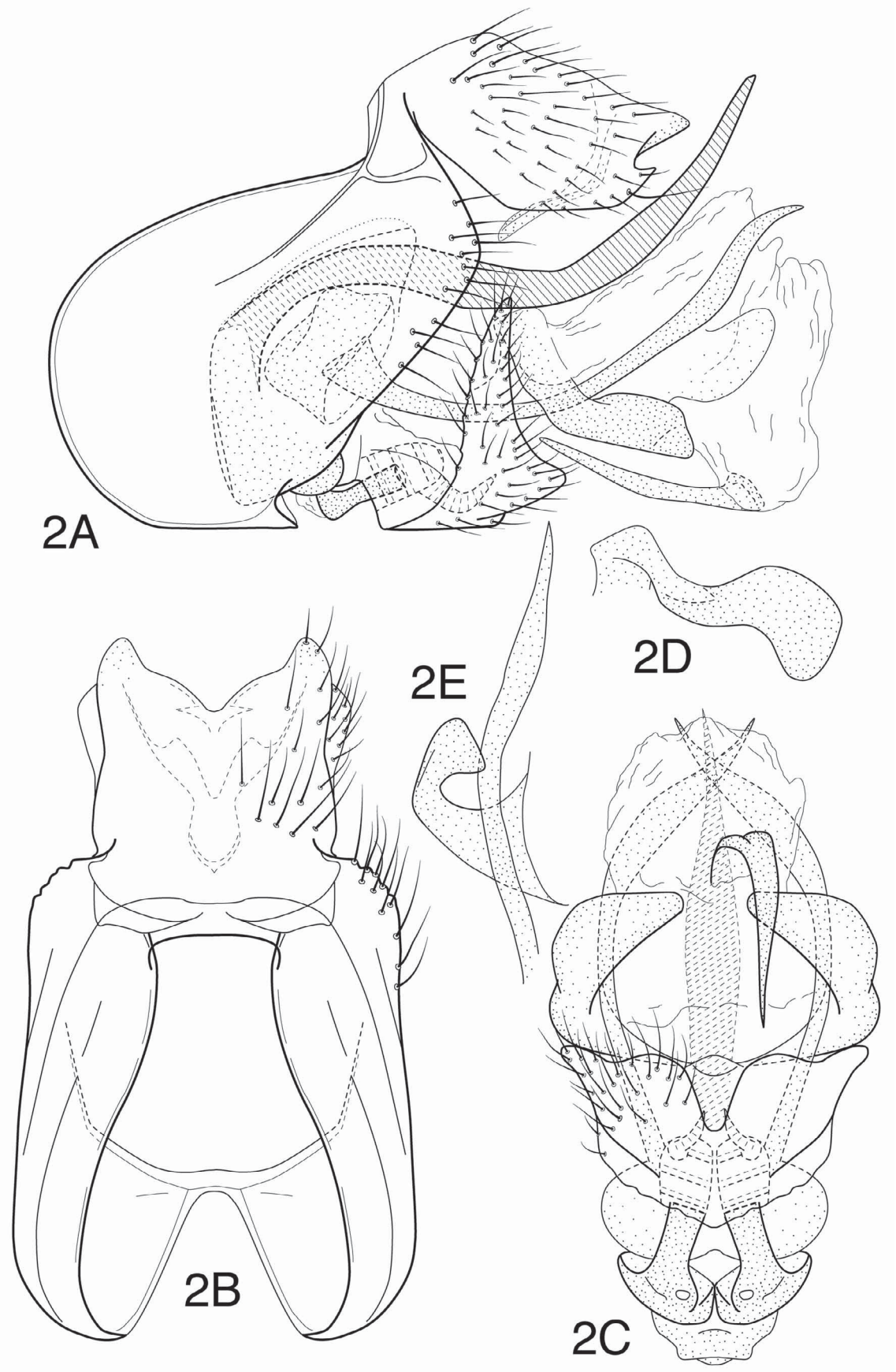


FIGURE 2. *Mortoniella agosta*, new species, male genitalia: A—lateral; B—segment IX and tergum X, dorsal; C—phallic ensemble, ventral; D—dorsolateral process of phallicata (variant from Minas Gerais), lateral; E dorsolateral process of phallicata (variant from Minas Gerais), ventral.

Isaac — 1 male, 3 females (pinned) (UMSP); Estação Ecológica do Tripuí, Córrego Tripuí, 20°23'22"S, 043°32'32"W, 1070 m, 21.ii.1999, Paprocki, Braga & Amarante — 4 males, 40 females (pinned) (UMSP); Cachoeira do Abacaxi, Vale do Tropeiro, 20°12'16"S, 043°38'10"W, 1120 m, 7.xi.2001, Holzenthal, Amarante, Blahnik & Paprocki — 1 male, 1 female (alcohol) (UMSP); Córrego da Serra de Ouro Fino, Vale do Tropeiro, 20°12'22"S, 043°38'35"W, 1000 m, 8.x.2000, Paprocki, Salgado & Isaac — 1 male (alcohol) (UMSP); **Rio de Janeiro:** same locality and date as holotype — 63 males, 127 females (pinned), 180 males, 304 females (alcohol) (MZUSP, UMSP, NMNH); Rio das Flores, Macaé de Cima, 10 km SE Mury, 1000 m, 9.iii.2002, Holzenthal, Blahnik, Paprocki & Prather — 75 males, 81 females (pinned), 26 males, 52 females (alcohol) (UMSP); Rio Bengalas, Hotel Bucsky, Nova Friburgo, 22°18'49"S, 042°31'09"W, 895 m, Paprocki — 47 males, 67 females (alcohol) (UMSP); Nova Friburgo, 22°16'00"S, 042°31'59"W, 950 m, 20.iv.1977, C & O Flint — 1 male, 9 females (pinned), 5 males, 26 females (alcohol) (NMNH); Nova Friburgo, mun. water supply, 22°16'00"S, 042°31'59"W, 950 m, 24.iv.1977, C & O. Flint — 1 male, 13 females (pinned) (NMNH); Encontro dos Rios (Macaé/Bonito), 6 km S Lumiar, 22°23'29"S, 042°18'42"W, 600 m, 10.iii.2002, Holzenthal, Blahnik, Paprocki, & Prather — 7 males, 9 females (pinned) 35 males (alcohol) (UMSP).

Etymology. This species is named *M. agosta* from the Greek word *agostos*, a bent arm, and referring to the elongate, bent, dorsolateral projections of the phallicata in this species.

Mortoniella albolineata Ulmer, 1907

Figs. 3, 38

Mortoniella albolineata Ulmer, 1907: 44; Blahnik & Holzenthal 2008: 69 [*M. leroda* species group].
Antoptila? albolineata (Ulmer); Mosely 1939: 218.
Mexitrichia albolineata (Ulmer); Flint 1966: 465 [lectotype designation and illustration; *Mexitrichia teutona* Mosely placed in synonymy]; Flint 1972: 225 [distribution; *Mexitrichia teutona* removed from synonymy]; Rueda & Gibon 2008: 223 [distribution].

Mortoniella albolineata belongs to a group of closely related species, including *M. dolonis*, n. sp.; *M. latispina*, n. sp.; and *M. teutona*. All of these species have the character combination of inferior appendages with a distinct, asymmetrical ventromesal process, dorsal phallic spine with a depressed, apically rounded, somewhat spatulate apex, and endophallic membrane with membranous lobes. Despite the name given to the type for this group, none of these species has a particularly distinct wing bar, although a small white spot is present at the arculus on the forewing. Perhaps the name given by Ulmer refers to the more or less hyaline crossveins present at the anastamosis, evident in denuded or alcohol preserved material, a general feature within the genus. In contrast to *M. latispina* and *M. teutona*, males of both *M. albolineata* and *M. dolonis* have hind wings densely covered with modified, somewhat flattened and scale-like setae; however, this character could escape casual attention. In *M. albolineata*, the setae of the hind wing are more distinctly scale-like than in *M. dolonis*. In other characters, *M. albolineata* is also similar to *M. dolonis*; in both species the ventral endophallic spine is elongate and prominent, and both species also have paramere appendages that are uniformly narrow throughout their length, as well as distinctly separated, paired lateral lobes on the endophallic membrane (in addition to a dorsal lobe paralleling the dorsal phallic spine). The lateral lobes on the endophallic membrane in the other 2 species are either unitary or more or less contiguous. In both *M. teutona* and *M. latispina* the endophallic spine is relatively short and curved and the paramere appendages are somewhat widened preapically. *Mortoniella albolineata* differs from *M. dolonis* in a number of details, the most diagnostic of which is that the paramere appendages are much more elongate. Other differences include an endophallic spine that is strongly curved, rather than nearly straight, and dorsolateral processes on the phallicata that are narrower, almost peg-like. The notched or bifid apex of the apicomesal process of the inferior appendages of *M. albolineata* is a character featured in the illustration of the lectotype by Flint (1966) and was also observed in the specimens examined. It may be diagnostic for this species.

Adult. Length of forewing: male 3.4–4.4 mm, female 3.7–4.6 mm. Forewing with forks I, II, and III present, hind wing with fork II only. Spur formula 0:4:4. Overall color, of male, grayish-brown, of female, brown. Legs brown, apices of tarsi whitish, tibial spurs somewhat darker than legs, but not strongly contrasting in color. Wing bar at anastamosis scarcely evident, marked with whitish setae at arculus on anal margin. Setae of forewing dense, decumbent, forewing of female with erect setae along major veins, that of male with slightly widened scale-like setae. Hind wing of male covered with modified scale-like setae.

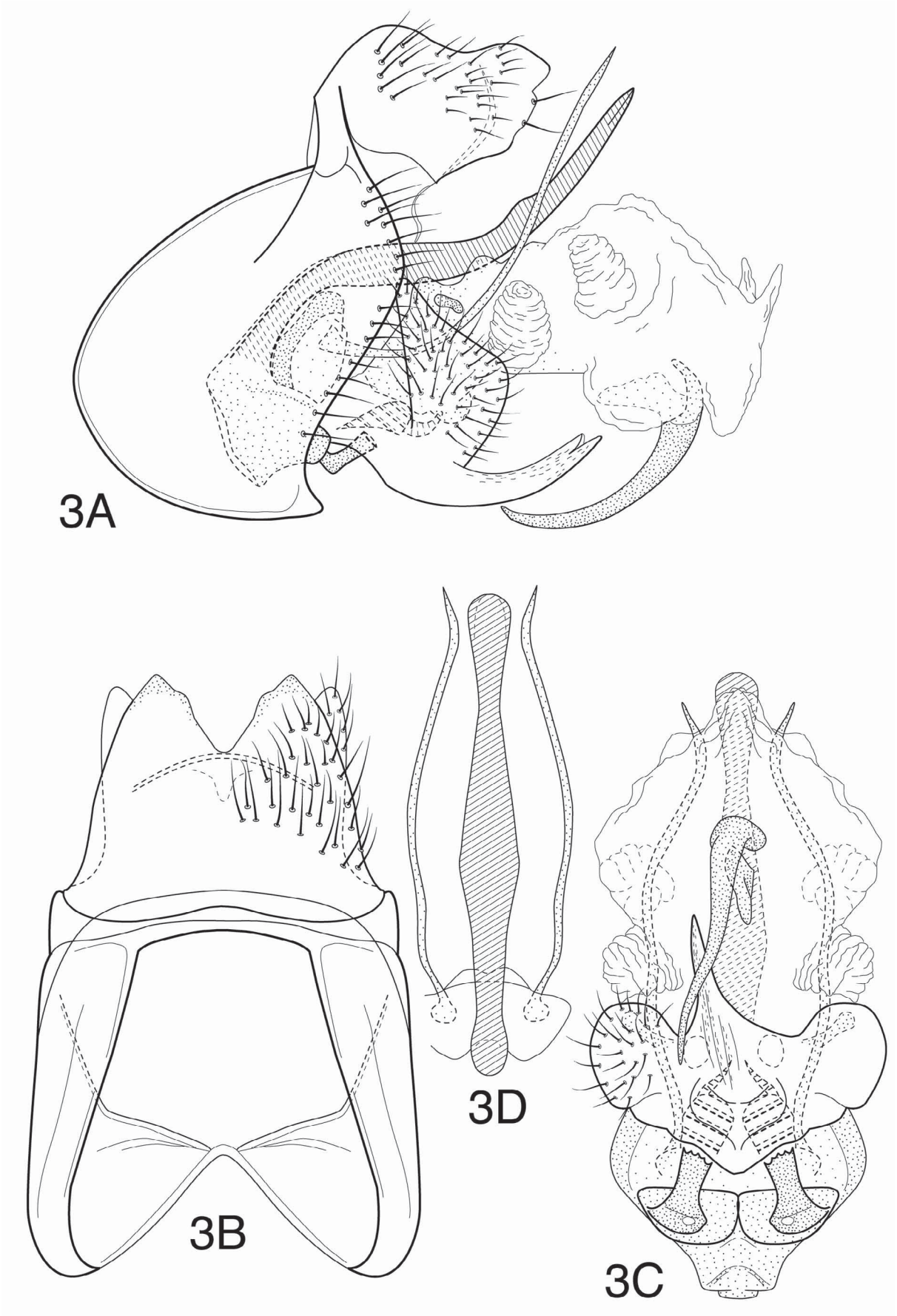


FIGURE 3. *Mortoniella albolineata* Ulmer, male genitalia: A—lateral; B—segment IX and tergum X, dorsal; C—phallic ensemble, ventral; D—dorsal phallic spine and paramere appendages, dorsal.

Male genitalia. Ventral process of segment VI laterally compressed, ventrally projecting, short, wide basally, rounded apically. Segment IX nearly evenly rounded anterolaterally, length greatest midlaterally, posterolateral margin forming rounded to slightly angular projection in dorsal 1/2, narrowing ventrally; segment deeply excised dorsomesally and ventromesally, forming lateral lobes, lobes separated dorsomesally by much less than 1/2 width of segment. Tergum X with broad V-shaped mesal excision; lateral lobes weakly developed, apices subacute. Inferior appendages with prominent and somewhat asymmetrically developed ventromesal projection, apex of projection notched, as viewed laterally; laterally, on each side, with setose, tapering, dorsally-directed lobes. Mesal pockets of fused inferior appendages with apical processes short, dorsally curved. Paramere appendages elongate, narrow, uniform in width, apices acute. Dorsal phallic spine, as viewed laterally, more or less uniform in width, gradually upturned in apical 1/2, apex narrowed and acute; in dorsal view, somewhat widened in middle, apex rounded, spatulate (depressed). Phallicata with short peg-like dorsolateral processes. Endophallic membrane with membranous dorsal lobe, paralleling dorsal phallic spine, 2 membranous lateral lobes on either side, and sclerotized ventromesal spine; ventral spine stout, elongate, curved, apex acute; phallotremal spines absent.

Material examined. **BRAZIL: Santa Catarina:** Riberão Gaspar, Belchior Alto, Gaspar, 26°48'22"S, 049°02'28"W, 120 m, 27.xi.2003, Holzenthal, Paprocki & Calor — 1 male, 7 females (pinned) (UMSP); Mun. Ilhota, Morro do Bau, 3.xii.1975 — 4 males, 10 females (alcohol) (NMNH); **São Paulo:** Parque Estadual Intervales, Rio do Carmo, 24°18'59"S, 048°25'15"W, 560 m, 29.ix.2002, Blahnik, Prather, Melo & Calor — 1 male (pinned) (UMSP).

Distribution. Argentina, Brazil, Uruguay.

Mortoniella asymmetris, new species

Fig. 4

Mortoniella asymmetris is most similar to, and undoubtedly most closely related to *M. truncata*, n. sp. Both species are characterized by having paramere appendages asymmetrically developed and differing in length, the left one shorter than the right. Other character similarities include upright processes bordering the paramere appendages that emerge from the ventral margin of the phallicata, and mesal pocket-like structures of the inferior appendages with very elongate, sinuous, spine-like apical processes. The latter structures appear to be fused or semi-fused mesally. *Mortoniella asymmetris* is diagnostically distinguished from *M. truncata* by having a tergum X, as viewed dorsally, with acute, rather than truncate, apicolateral projections, and also by having the ventral spine of the endophallic membrane modified into a structure with minute apical spines. Both of these species seem to be closely related to the group of species discussed under *M. unota*, agreeing in having a dorsal phallic spine sharply upturned apically, with a ventral deflection at the point of inflection, and with the spine, in dorsal view, distinctly widened at the point of inflection and very narrow basally and apically. In *M. asymmetris* the lateral margins of the dorsal phallic spine are distinctively upturned at the inflection point for the spine.

Adult. Length of forewing: male 2.5–2.7 mm, female 2.6–3.4 mm. Forewing with forks I, II, and III present, hind wing with fork II only. Spur formula 0:3:4. Overall color, in alcohol, light brown. Tibial spurs somewhat darker than legs, contrasting in color. Wing bar at anastamosis not evident (in alcohol).

Male genitalia. Ventral process of segment VI laterally compressed, ventrally projecting, subtriangular, wide basally, acute apically. Segment IX nearly evenly rounded anterolaterally, length greatest midlaterally, posterolateral margin weakly, convexly rounded dorsally, narrowing ventrally; segment deeply excised dorsomesally and ventromesally, forming lateral lobes, lobes separated dorsomesally by much less than 1/2 width of segment. Tergum X with U-shaped mesal excision, extending less than 1/2 length of segment, and projecting lateral lobes; lateral lobes with apices acute to subacute, as viewed both laterally and dorsally. Inferior appendages without ventromesal projection; laterally, on each side, with setose, tapering, dorsally-directed lobes, lobes very narrowed dorsally. Mesal pockets of fused inferior appendages with apical processes elongate, sinuous, more or less fused mesally. Paramere appendages uniformly narrow, asymmetrically developed in length and orientation, the left short and upturned, the right long and downturned. Dorsal phallic spine, as viewed laterally, with lateral margins broadened and somewhat upturned, apical 1/3rd sharply upturned, with distinct sinuous deflection on ventral margin before point of upturn; in dorsal view, very distinctly widened in middle, apical part abruptly narrowed, apex bluntly rounded, subacute. Phallicata with sclerotized, posteriorly-directed dorsomesal process articulating with

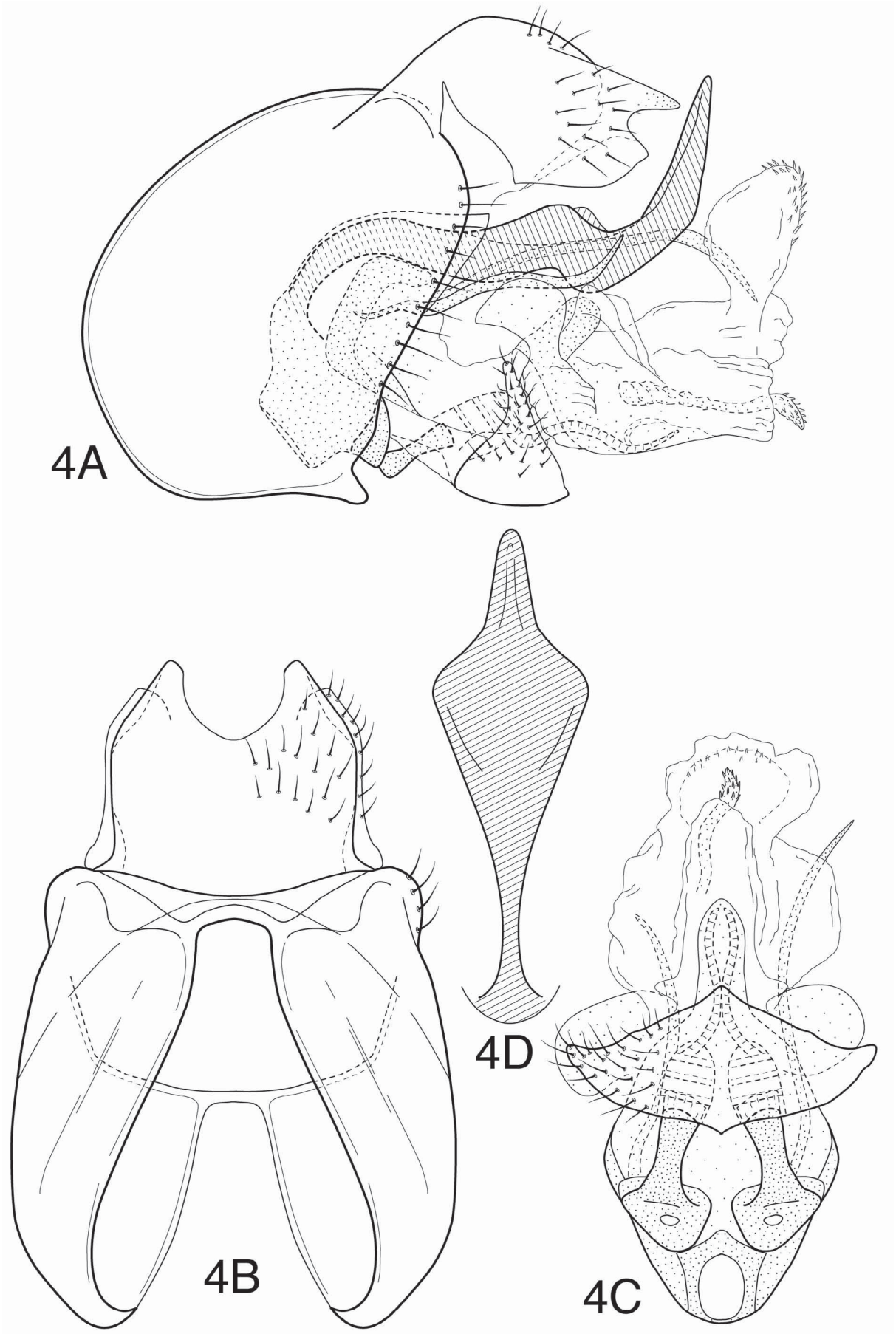


FIGURE 4. *Mortoniella asymmetris*, new species, male genitalia: A—lateral; B—segment IX and tergum X, dorsal; C—phallic ensemble, ventral; D—dorsal phallic spine, dorsal.

dorsal phallic spine, and paired, upturned, lightly sclerotized processes arising from basoventral margin; dorsolateral processes only suggestively developed, apparently absent. Endophallic membrane with membranous apical lobe bearing minute spines and modified ventral spine; ventral spine of endophallic membrane somewhat rod-like, lightly sclerotized basally, apically slightly curved and with minute spines; phallotremal spines absent.

Holotype male: PARAGUAY: Amambay: Cerro Cora, Río Aquidaban, 29.xi.1973, Flint, O S (UMSP000124876) (alcohol) (NMNH).

Paratypes: PARAGUAY: Amambay: same locality and date as holotype — 6 males, 13 females (alcohol) (NMNH, UMSP); **Concepción:** Concepción, 23°25'00"S, 057°17'00"W, 26.viii.1989, Kochalka, J — 1 male (alcohol) (NMNH).

Etymology. This species is named *M. asymmetris* for the asymmetrically developed paramere appendages of the male.

***Mortoniella crescentis*, new species**
Fig. 5

Mortoniella crescentis is diagnostically distinguished from any other species of *Mortoniella* by the structure of the male dorsal phallic spine, which has its apex laterally compressed, but widened and crescentic in structure, as viewed laterally. The extent of development varies in the material available and is especially strongly developed in the specimens from Teresopolis (Fig. 5D). Despite, its unique appearance, *M. crescentis* is somewhat similar in structure to both *M. hystricosa*, n. sp., and *M. parauna*, n. sp., both of which also have similar dorsolateral processes of the phallicata, relatively short paramere appendages, a tergum X with lateral lobes relatively narrowly separated, and a strongly upturned phallic spine. Like *M. hystricosa*, *M. crescentis* has a distinct, asymmetrical mesal process on the fused inferior appendages, lacking in *M. parauna*.

Adult. Length of forewing: male 3.8-4.8 mm, female 4.3-5.0 mm. Forewing with forks I, II, and III present, hind wing with fork II only. Spur formula 0:4:4. Overall color very dark brown. Legs same color, apices of tarsi whitish, tibial spurs somewhat darker than legs, but not strongly contrasting in color. Wing bar at anastamosis distinctly marked with white, contrasting setae, bar narrow, but more or less continuous.

Male genitalia. Ventral process of segment VI laterally compressed, ventrally projecting, subtriangular, wide basally, acute apically (Fig. 5E). Segment IX nearly evenly rounded anterolaterally, length greatest midlaterally, posterolateral margin convexly rounded, narrowing ventrally; segment deeply excised dorsomesally and ventromesally, forming lateral lobes, lobes separated dorsomesally by much less than 1/2 width of segment. Tergum X with narrow, V-shaped mesal excision and projecting lateral lobes; lateral lobes with apices subacute, as viewed dorsally, bluntly rounded, as viewed laterally. Inferior appendages with prominent and somewhat asymmetrically developed mesal projection; laterally, on each side, with setose, tapering, dorsally-directed lobes. Mesal pockets of fused inferior appendages with apical processes short, dorsally curved. Paramere appendages of moderate length, as viewed laterally, straight, narrow, uniform in width, apices acute; in dorsal view, paramere appendages slightly curved. Dorsal phallic spine, as viewed laterally, of distinctive shape, relatively stout, apical 1/3rd sharply upturned, apex laterally compressed and crescentic in shape. Phallicata with short, rounded, depressed dorsolateral processes, emerging from upturned, sclerotized, dorsal margin of phallicata. Endophallic membrane relatively simple in structure, with sclerotized ventromesal spine; ventral spine short, curved, apex acute; phallotremal spines absent.

Holotype male: BRAZIL: Rio de Janeiro: Rio Campo Belo, trail to Veu da Noiva, 22°25'42"S, 044°37'10"W, 1310 m, 24.xi.2001, Holzenthal, Blahnik, Neto & Paprocki (UMSP000081785) (pinned) (MZUSP).

Paratypes: BRAZIL: Rio de Janeiro: same locality and date as holotype — 2 females (pinned) (UMSP); Parque Nacional do Itatiaia, Rio Campo Belo, 22°27'02"S, 044°36'49"W, 1300 m, 23.xi.2001, Holzenthal, Blahnik, Neto, & Paprocki — 5 males, 1 female (pinned), 1 male (alcohol) (UMSP, MZUSP); same locality, 7.iii.2002, Holzenthal, Blahnik, Paprocki & Prather — 5 males, 1 female (pinned) (UMSP, NMNH); Teresopolis, 18 km S, Km 17, 1180 m, 18-19.iv.1977, C & O Flint — 7 males, 1 female (pinned) (NMNH).

Etymology. This species is named *M. crescentis* for the crescentic apical development of the dorsal phallic spine of the male.

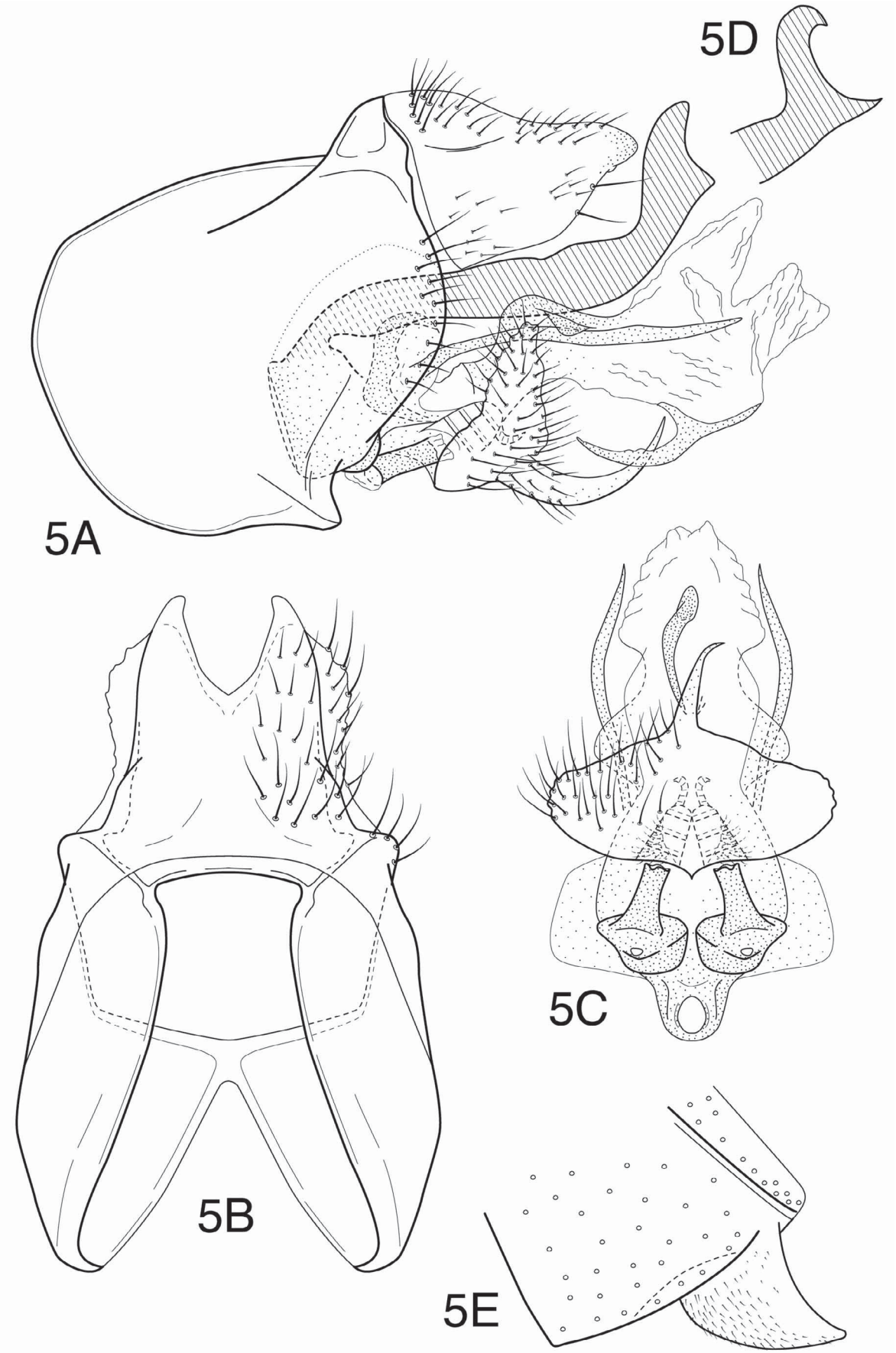


FIGURE 5. *Mortoniella crescentis*, new species, male genitalia: A—lateral; B—segment IX and tergum X, dorsal; C—phallic ensemble, ventral; D—apex of dorsal phallic spine (variant from Teresopolis), lateral; E—ventral process of segment VI, lateral.

***Mortoniella dolonis*, new species**
Fig. 6

As discussed under *M. albolineata*, *Mortoniella dolonis* belongs to a group of closely related species, including *M. albolineata*; *M. latispina*, n. sp.; and *M. teutona*. All of these species have the character combination of inferior appendages with a distinct, asymmetrical mesal process, dorsal phallic spine with a depressed, apically rounded, somewhat spatulate apex, and endophallic membrane with membranous lobes. *Mortoniella dolonis* is most similar to *M. albolineata*; in both species the ventral endophallic spine is elongate and prominent, and both species also have paramere appendages that are uniformly narrow throughout their length and also distinctly separated, paired lateral lobes on the endophallic membrane (in addition to a lobe paralleling the dorsal phallic spine). Also, in contrast to *M. latispina* and *M. teutona*, males of both *M. albolineata* and *M. dolonis* have hind wings densely covered with modified, somewhat flattened and scale-like setae. *Mortoniella dolonis* differs from *M. albolineata* in several details, the most diagnostic of which are that the paramere appendages are short and curved apically, rather than elongate and straight, and the endophallic spine is nearly straight and dagger-like, rather than strongly curved. An additional difference is that the dorsolateral processes on the phallicata are more prominent.

Adult. Length of forewing: male 3.2–3.6 mm, female 3.8–4.1 mm. Forewing with forks I, II, and III present, hind wing with fork II only. Spur formula 0:4:4. Overall color, of male, grayish-brown, of female, brown. Legs brown, apices of tarsi whitish, tibial spurs somewhat darker than legs, but not strongly contrasting in color. Wing bar at anastamosis scarcely evident, marked with whitish setae at arculus on anal margin. Setae of forewing dense, decumbent; forewing of female with erect setae along major veins, that of male with slightly widened scale-like setae. Hind wing of male covered with modified scale-like setae.

Male genitalia. Ventral process of segment VI laterally compressed, ventrally projecting, short, wide basally, rounded apically. Segment IX nearly evenly rounded anterolaterally, length greatest midlaterally, posterolateral margin convexly rounded dorsally, narrowing ventrally; segment deeply excised dorsomesally and ventromesally, forming lateral lobes, lobes separated dorsomesally by much less than 1/2 width of segment. Tergum X with shallow V-shaped mesal excision; lateral lobes very weakly developed, apices broadly rounded. Inferior appendages with prominent and somewhat asymmetrically developed ventromesal projection; laterally, on each side, with setose, tapering, dorsally-directed lobes. Mesal pockets of fused inferior appendages with apical processes short, dorsally curved. Paramere appendages short, narrow, uniform in width, upturned apically, apices acute. Dorsal phallic spine, as viewed laterally, more or less uniform in width, gradually upturned in apical 1/2, apex narrowed and acute; in dorsal view, somewhat widened in middle, apex rounded, spatulate (depressed). Phallicata with prominent, sclerotized, dorsolateral processes. Endophallic membrane with membranous dorsal lobe, paralleling dorsal phallic spine, 1 pair of membranous dorsolateral lobes, and sclerotized ventromesal spine; ventromesal spine elongate, nearly straight, apex acute.

Holotype male: BRAZIL: São Paulo: Pedregulho, Riberão São Pedro, 20°09'07"S, 047°30'38"W, 617 m, 16.xi.2003, Holzenthal, Paprocki & Calor (UMSP000085343) (pinned) (MZUSP).

Paratypes: BRAZIL: Minas Gerais: Córrego da Serra de Ouro Fino, Vale do Tropeiro, 20°12'22"S, 043°38'35"W, 1000 m, 8.x.2000**,** Paprocki, Salgado & Isaac — 1 male, 1 female (alcohol) (UMSP); **São Paulo:** same locality and date as holotype — 1 male, 2 females (pinned) (UMSP); 10 males (alcohol) (MZUSP, UMSP, NMNH); Pedregulho, Sitio Bruninho, 20°09'14"S, 047°30'42"W, 630 m, 17.xi.2003, Holzenthal, Paprocki & Calor — 2 males (pinned) (UMSP); Pedregulho, 20°09'07"S, 047°30'38"W, 617 m, 6.x.2000, Paprocki & Froehlich — 1 male, 1 female (pinned) (UMSP).

Etymology. This species is named *M. dolonis*, from the Greek word *dolon*, a dagger or stiletto, and referring to the nearly straight, dagger-like spine of the endophallic membrane, which helps to distinguish this species from its most closely related congeners.

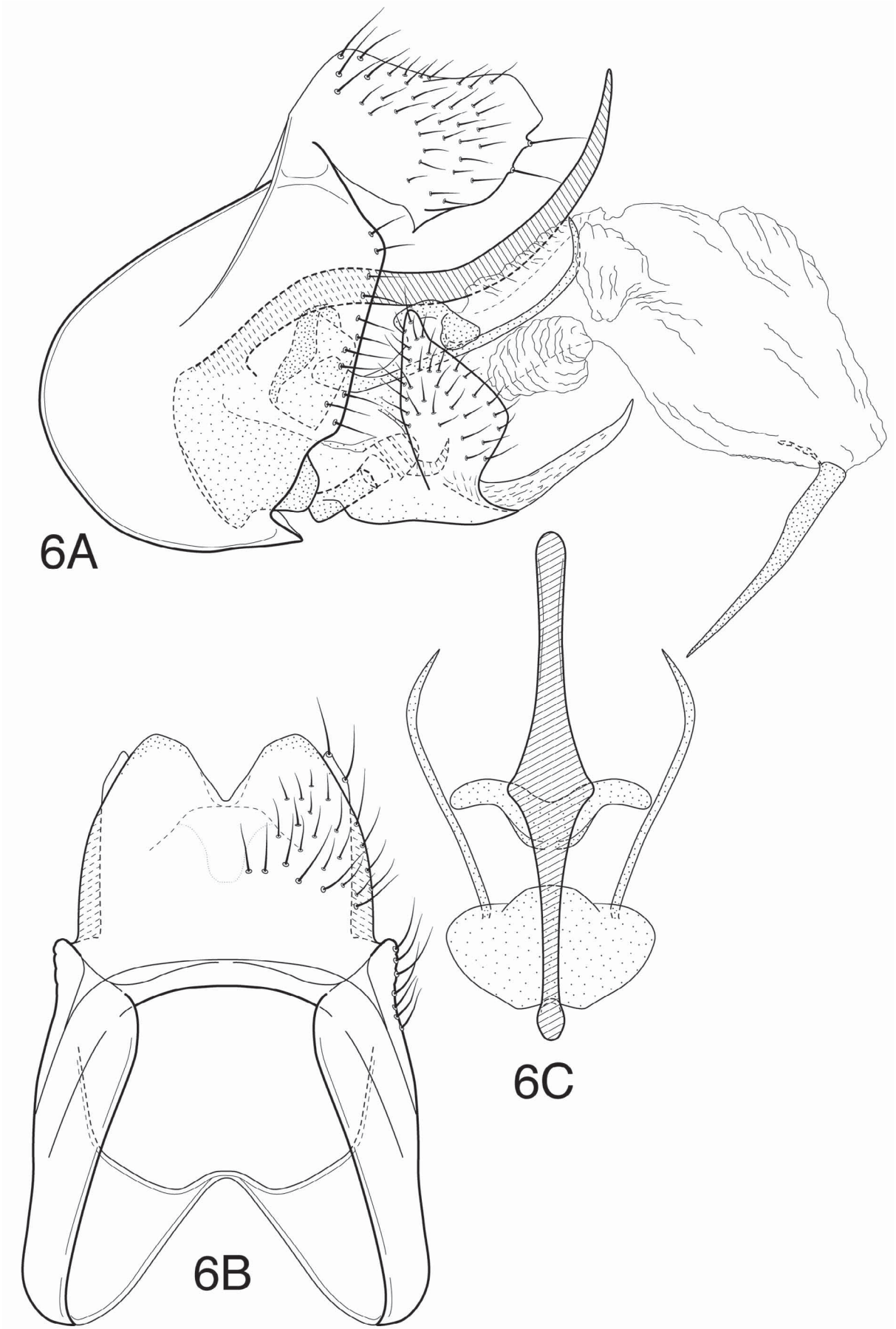


FIGURE 6. *Mortoniella dolonis*, new species, male genitalia: A—lateral; B—segment IX and tergum X, dorsal; C— dorsal phallic spine, paramere appendages, and dorsolateral processes of phallicata, dorsal.

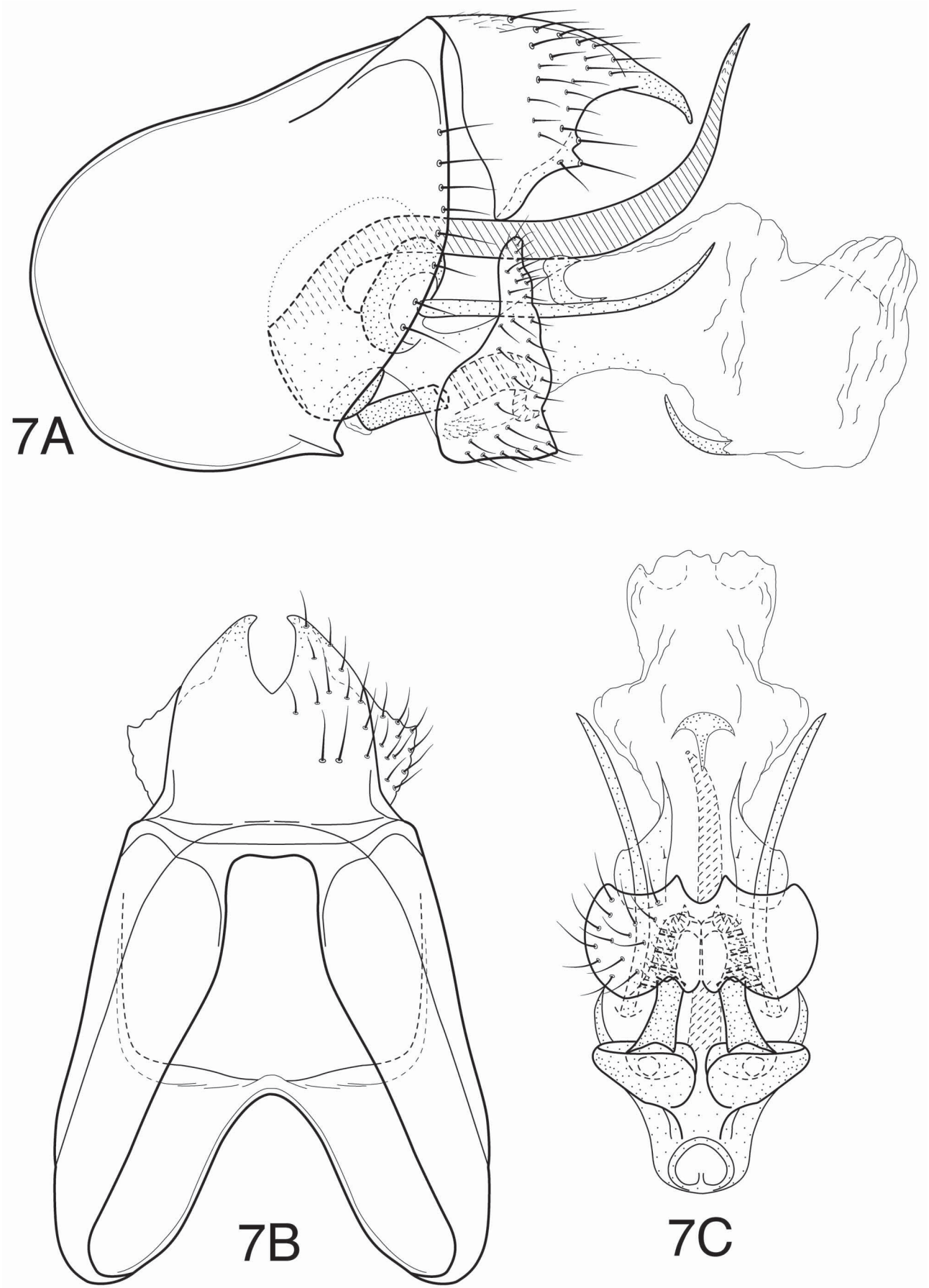


FIGURE 7. *Mortoniella guahybae*, new species, male genitalia: A—lateral; B—segment IX and tergum X, dorsal; C—phallic ensemble, ventral.

***Mortoniella guahybae,* new species**
Fig. 7

This species is distinguished from other members of the *M. albolineata* subgroup by the following diagnostic character set: Fused inferior appendages without distinct ventromesal process; paramere appendages short, narrow throughout, upcurved apically; and tergum X with a narrow, V-shaped mesal excision. Additional characters include a strongly inflected dorsal phallic spine and an endophallic spine that is short and curved.

Adult. Length of forewing: male 3.5–3.7 mm, female 3.8 mm. Forewing with forks I, II, and III present, hind wing with fork II only. Spur formula 0:4:4. Overall color very dark brown. Legs brown, apices of tarsi whitish, tibial spurs somewhat darker than leg, but not strongly contrasting in color. Antenna with apical part of basal segments whitish. Wing bar at anastamosis distinctly marked with white, contrasting setae, band narrow, but more or less continuous.

Male genitalia. Ventral process of segment VI laterally compressed, ventrally projecting, subtriangular, wide basally, acute apically. Segment IX nearly evenly rounded anterolaterally, length greatest midlaterally, posterolateral margin weakly, convexly rounded dorsally, narrowing ventrally; segment deeply excised dorsomesally and ventromesally, forming lateral lobes, lobes separated dorsomesally by much less than 1/2 width of segment. Tergum X with narrow V-shaped mesal excision and projecting lateral lobes; lateral lobes tapering, acute, slightly mesally curved. Inferior appendages without ventromesal projection; laterally, on each side, with setose, tapering, dorsally-directed lobes. Mesal pockets of fused inferior appendages with apical processes short, dorsally curved. Paramere appendages of moderate length, narrow, uniform in width, upcurved apically, apices acute. Dorsal phallic spine, as viewed laterally, more or less uniform in width, strongly upturned in apical 1/2, apex narrowed and acute in both lateral and dorsal views. Phallicata with short, rounded, sclerotized dorsolateral processes. Endophallic membrane simple, with bulging membranous lateral lobes and ventromesal spine; ventral spine very short, curved, apex acute; phallotremal spines absent.

Holotype male: BRAZIL: São Paulo: Parque Estadual de Campos do Jordão, Rio Galharada, 22°41'40"S, 045°27'47"W, 1530 m, 4-5.iii.1996, Holzenthal & Guahyba (UMSP000001575) (pinned) (MZUSP).

Paratypes: BRAZIL: São Paulo: same locality and date as holotype — 1male, 2 females (pinned) (UMSP).

Etymology. This species is named *M. guahybae* in memory of Rosalys Guahyba, who helped to collect the type specimens and under whose invitation the second author initiated his studies of Trichoptera in Brazil.

***Mortoniella hystricosa*, new species**
Fig. 8

Mortoniella hystricosa is diagnostically distinguished from any other species of *Mortoniella* by the structure of its dorsal phallic spine, which has its apex both distinctly spinose and strongly upturned, and also by the structure of tergum X, which is deeply and narrowly incised mesally and has the apices of the lateral lobes truncate in lateral view. Despite, its unique appearance, *M. hystricosa* is somewhat similar in structure to both *M. crescentis*, n. sp., and *M. parauna*, n. sp., both of which have similar dorsolateral processes of the phallicata, relatively short paramere appendages, a tergum X with lateral lobes narrowly separated, and a strongly upturned dorsal phallic spine. Like *M. crescentis*, but unlike *M. parauna*, *M. hystricosa* has a distinct, asymmetrical mesal process on the inferior appendages.

Adult. Length of forewing: male 4.0–4.4 mm, female 4.6 mm. Forewing with forks I, II, and III present, hind wing with fork II only. Spur formula 0:4:4. Overall color very dark brown. Legs same color, apices of tarsi whitish, tibial spurs somewhat darker than leg, but not strongly contrasting in color. Wing bar at anastamosis distinctly marked with whitish, setae, band narrow, but more or less continuous.

Male genitalia. Ventral process of segment VI laterally compressed, ventrally projecting, subtriangular, wide basally, acute apically. Segment IX nearly evenly rounded anterolaterally, length greatest midlaterally, posterolateral margin forming rounded to slightly angular projection in dorsal 1/2, narrowing ventrally; segment deeply excised dorsomesally and ventromesally, forming lateral lobes, lobes separated dorsomesally by much less than 1/2 width of segment. Tergum X with narrow, deep, V-shaped mesal excision and projecting lateral lobes; lateral lobes with apices acute and slightly mesally curved in dorsal view, wide and broadly truncate in lateral view. Inferior

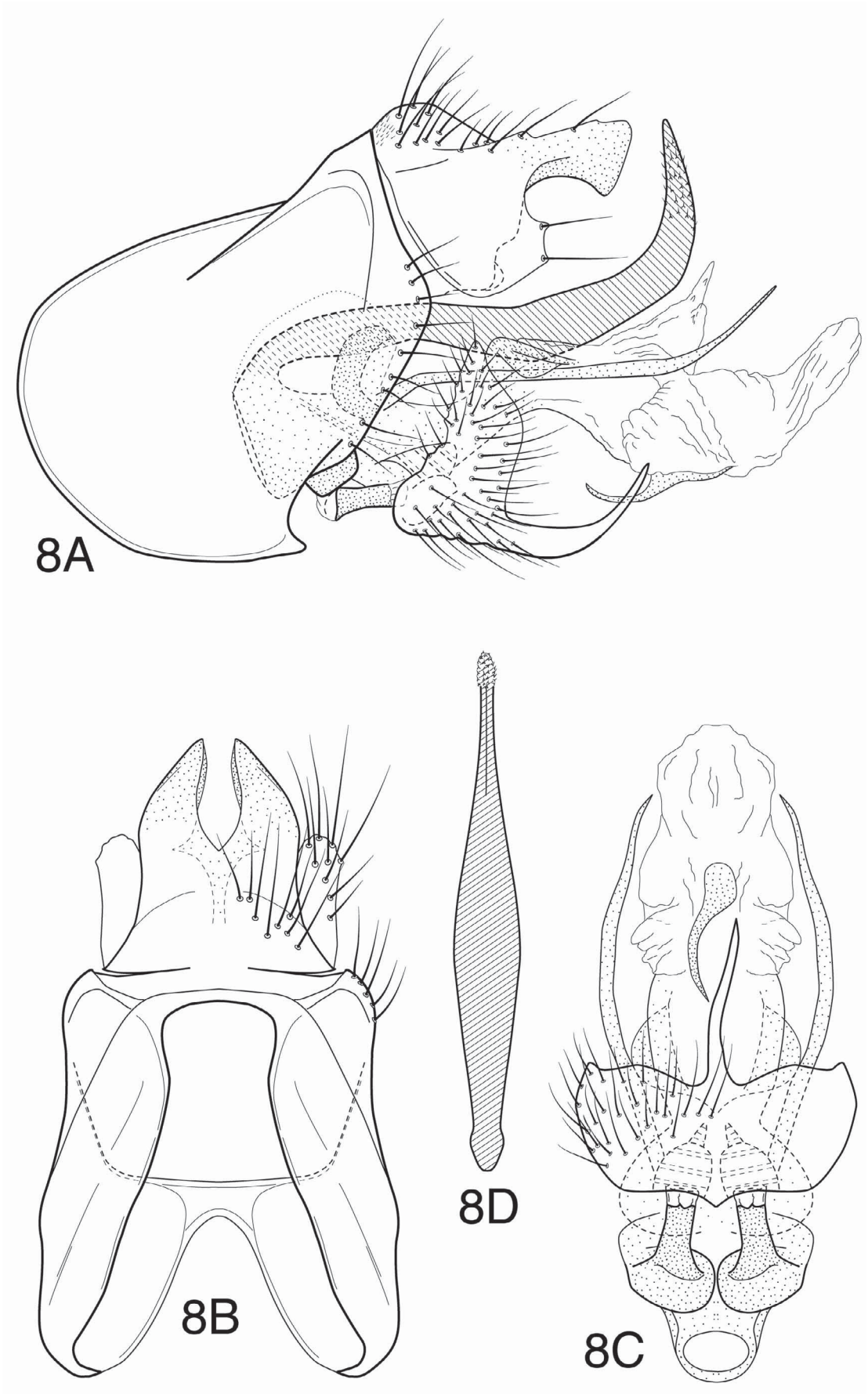


FIGURE 8. *Mortoniella hystricosa*, new species, male genitalia: A—lateral; B—segment IX and tergum X, dorsal; C—phallic ensemble, ventral; D—dorsal phallic spine, dorsal.

appendages with prominent and somewhat asymmetrically developed ventromesal projection; laterally, on each side, with setose, tapering, dorsally-directed lobes. Mesal pockets of fused inferior appendages with apical processes short, dorsally curved. Paramere appendages moderately elongate, narrow, uniform in width, upcurved apically, apices acute. Dorsal phallic spine, as viewed laterally, relatively stout, broadened in middle, strongly upturned in apical 1/2, apex narrowed and acute, with numerous minute spines; in dorsal view gradually broadened at midlength, narrowed apically. Phallicata with short, rounded, sclerotized dorsolateral processes. Endophallic membrane simple, with bulging membranous lateral lobes and ventromesal spine; ventral spine very short, curved, apex acute; phallotremal spines absent.

Holotype male: BRAZIL: Santa Catarina: Parque Ecológica Spitzkopf, confl. Rio Ouro & Rio Caeté, 27°00'21"S, 049°06'42"W, 140 m, 25.xi.2003, Holzenthal, Paprocki & Calor (UMSP000085400) (pinned) (MZUSP).

Paratypes: BRAZIL: Santa Catarina: Urubici, Cachoeira Avencal, 28°02'50"S, 049°37'00"W, 1260 m, 6.iii.1998, Holzenthal, Froehlich & Paprocki — 5 males, 1 female (pinned) (UMSP).

Etymology. This species is named *M. hystricosa* from the Latin word *hystrix*, a porcupine, and referring to the spiny apex of the dorsal phallic spine of the male in this species.

Mortoniella intervales, new species

Fig. 9

This is a distinctive species within the *M. albolineata* subgroup, easily diagnosed by the very elongate apicolateral projections of tergum X, ventrally recurved apex of the dorsal phallic spine, and presence of a ventromesal projection on the inferior appendages.

Adult. Length of forewing: male 3.8–4.8 mm, female 4.3–5.0 mm. Forewing with forks I, II, and III present, hind wing with fork II only. Spur formula 0:4:4. Overall color dark brown. Legs same color, apices of tarsi whitish, tibial spurs somewhat darker than leg, but not strongly contrasting in color. Wing bar at anastamosis distinctly marked with white setae, band narrow, but more or less continuous.

Male genitalia. Ventral process of segment VI laterally compressed, ventrally projecting, subtriangular, moderately elongate, wide basally, acute apically (Fig. 9D). Segment IX nearly evenly rounded anterolaterally, length greatest midlaterally, posterolateral margin convexly rounded, narrowing ventrally; segment deeply excised dorsomesally and ventromesally, forming lateral lobes, lobes separated dorsomesally by much less than 1/2 width of segment. Tergum X with deep, V-shaped mesal excision and projecting apicolateral lobes, basolaterally with short rounded setose lobes; lateral lobes very elongate, tapering, acute apically. Inferior appendages with prominent and somewhat asymmetrically developed ventromesal projection; laterally, on each side, with setose, tapering, dorsally-directed lobes. Mesal pockets of fused inferior appendages with apical processes short, dorsally curved. Paramere appendages short, uniform in width, apices acute and somewhat upturned. Dorsal phallic spine, as viewed laterally, more or less uniform in width, gradually upturned in apical 1/2, apex acute and distinctly ventrally recurved. Phallicata rather distinctly sclerotized, with broadly rounded dorsolateral lobes and weakly projecting, rounded ventral lobes; apicodorsally with 2 pairs additional sclerotized lobes, the anterior ones elongate and finger-like, the posterior ones short and rounded. Endophallic membrane relatively short and simple, with ventromesal spine; ventral spine short, stout, curved, apex acute; phallotremal spines absent.

Holotype male: BRAZIL: São Paulo: Parque Estadual Intervales, Rio do Carmo, 24°18'59"S, 048°25'15"W, 560 m, 29.ix.2002, Blahnik, Prather, Melo & Calor (UMSP000088142) (pinned) (MZUSP).

Paratypes: BRAZIL: São Paulo: same locality and date as holotype — 10 males, 9 females (pinned) (MZUSP, UMSP, NMNH).

Etymology. This species is named *M. intervales*, with the epithet used as a noun in apposition, for Parque Estadual Intervales, the very beautiful park where the type specimens were collected.

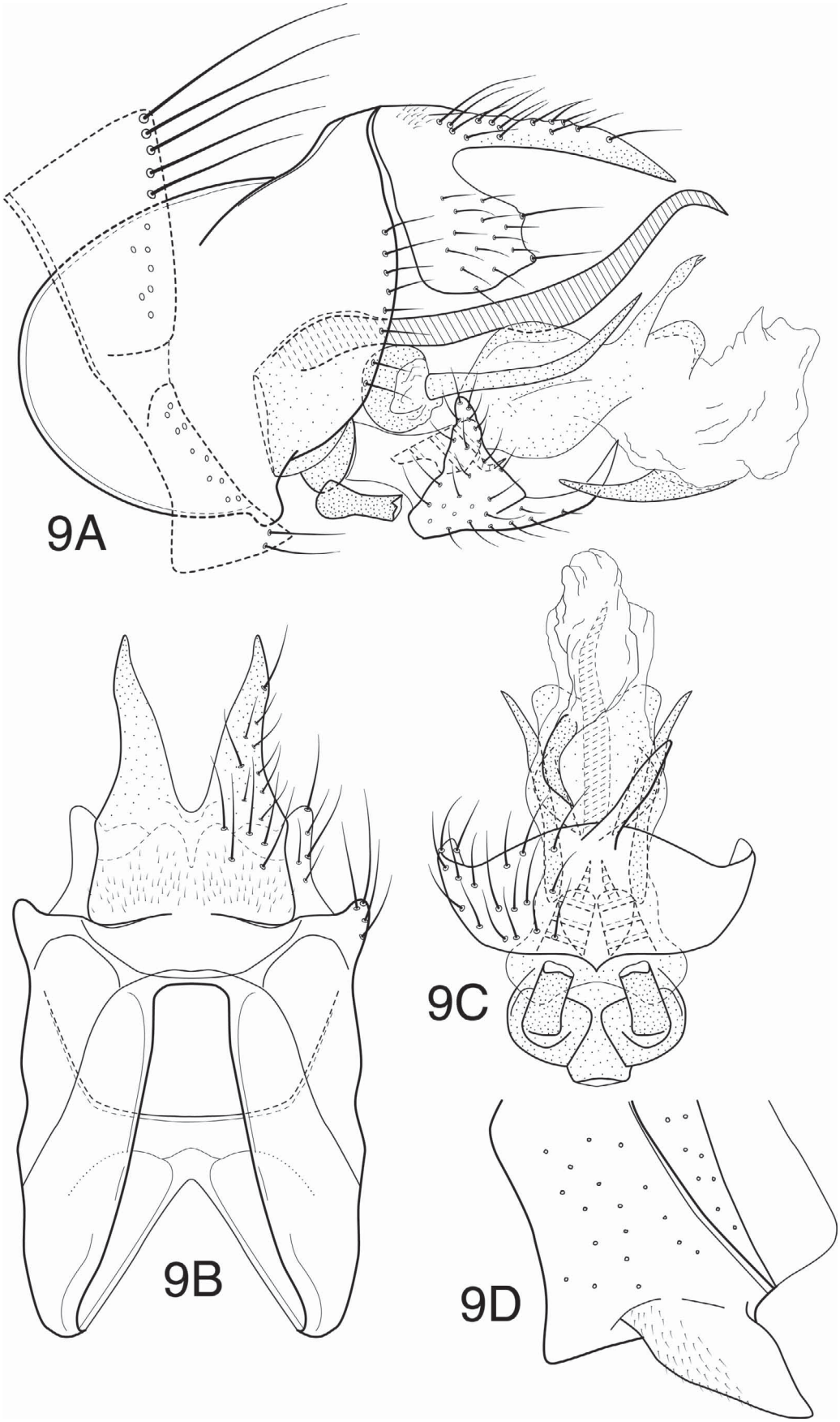


FIGURE 9. *Mortoniella intervales*, new species, male genitalia: A—lateral; B—segment IX and tergum X, dorsal; C—phallic ensemble, ventral; D—ventral process of segment VI, lateral.

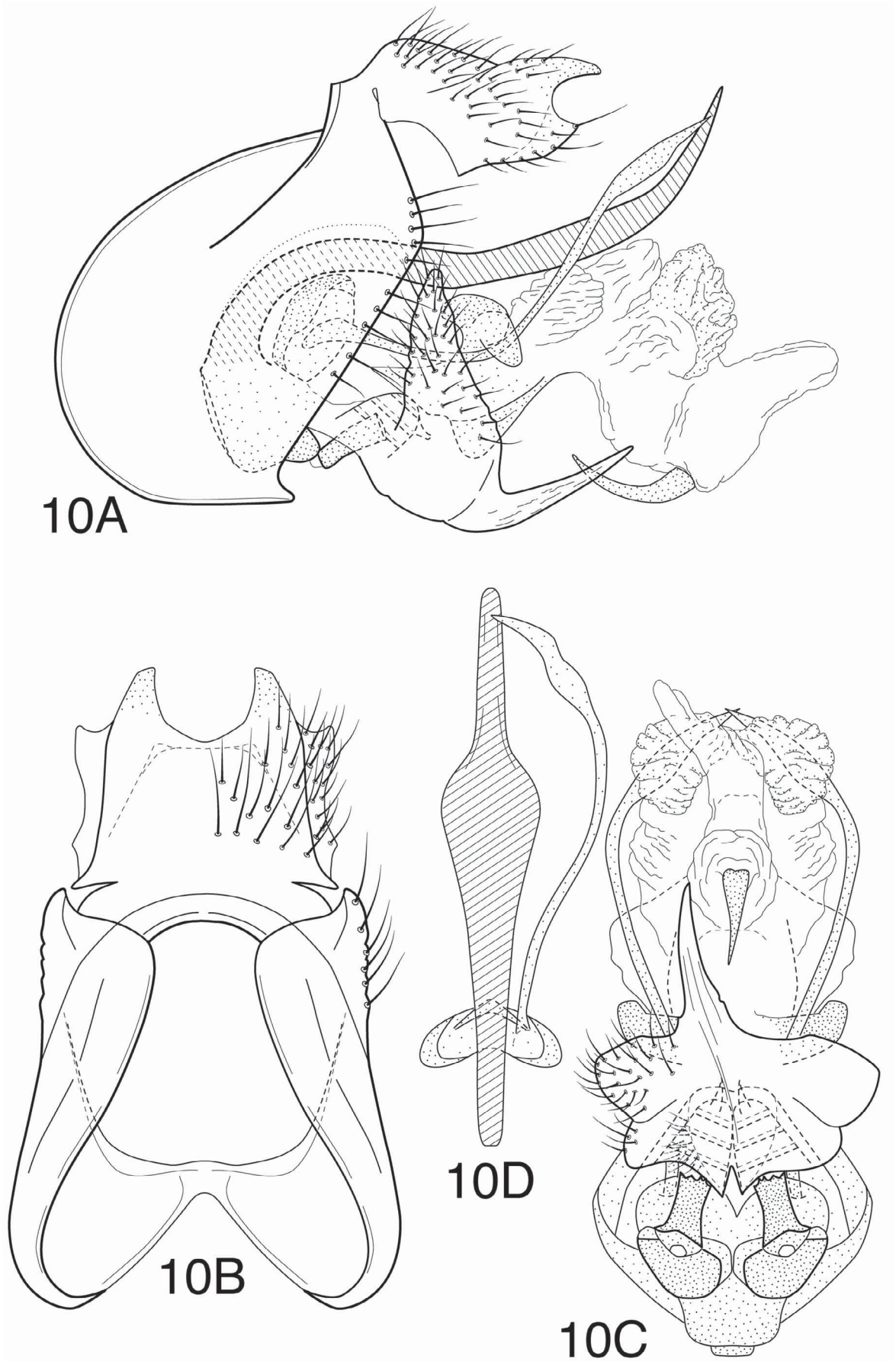


FIGURE 10. *Mortoniella latispina*, new species, male genitalia: A—lateral; B—segment IX and tergum X, dorsal; C—phallic ensemble, ventral; D—dorsal phallic spine and paramere appendage, dorsal.

***Mortoniella latispina*, new species**
Fig. 10

As discussed under *M. albolineata*, *Mortoniella latispina* belongs to a group of closely related species, including *M. dolonis*, n. sp.; *M. teutona*; and *M. albolineata*. All of these species have the character combination of inferior appendages with a distinct, asymmetrical mesal process, dorsal phallic spine with a depressed, apically rounded, spatulate apex, and endophallic membrane with membranous lobes. It is most similar to *M. teutona*; in both species the ventral endophallic spine is relatively short and curved and the paramere appendages are somewhat widened preapically. The endophallic spine is much more prominent in the other 2 species of this group and both of these species have paramere appendages that are uniform in width throughout their length. *Mortoniella latispina* differs from *M. teutona* in several details, the most diagnostic of which is a dorsal phallic spine that is distinctly widened at the point of inflection, as viewed dorsally. This also distinguishes *M. latispina* from *M. albolineata* and *M. dolonis*. The major flexion of this spine is also more apical than in *M. teutona*. Other differences include a slightly wider mesal excavation of tergum X, appearing more U-shaped than V-shaped, and differences in the structure of the membranous lobes of the endophallic membrane. In *M. latispina* the dorsal lobe, which parallels the dorsal phallic spine, is short, rather than elongate, and the lateral lobe is not subdivided and is also distinctly sclerotized. However, this is only likely to be evident in specimens in which this structure is expanded.

Adult. Length of forewing: male 3.3 mm. Forewing with forks I, II, and III present, hind wing with fork II only. Spur formula 0:4:4. Overall color dark brown. Legs brown, apices of tarsi whitish, tibial spurs darker in color, contrasting with legs. Antennae with apical part of basal segments whitish. Wing bar at anastamosis more or less distinctly marked with whitish setae, bar narrow, discontinuous.

Male genitalia. Ventral process of segment VI laterally compressed, ventrally projecting, subtriangular, wide basally, rounded to subacute apically. Segment IX nearly evenly rounded anterolaterally, length greatest midlaterally, posterolateral margin weakly, convexly rounded dorsally, narrowing ventrally; segment deeply excised dorsomesally and ventromesally, forming lateral lobes, lobes separated dorsomesally by much less than 1/2 width of segment. Tergum X with U-shaped mesal excision; lateral lobes moderately elongate, apices subacute as viewed dorsally and laterally. Inferior appendages with prominent and somewhat asymmetrically developed ventromesal projection; laterally, on each side, with setose, tapering, dorsally-directed lobes. Mesal pockets of fused inferior appendages with apical processes short, slightly dorsally curved. Paramere appendages elongate, narrow, slightly widened in apical 1/3rd, upturned apically, apices acute. Dorsal phallic spine, as viewed laterally, more or less uniform in width, gradually upturned, weakly near base, more strongly in apical 1/3rd, apex narrowed and acute; in dorsal view, very distinctly widened at about 2/3rds length, apical 1/3rd narrow, apex rounded, spatulate (depressed). Phallicata with sclerotized, anteriorly directed process, subtending dorsal phallic spine, and moderately elongate, narrow, projecting lateral processes. Endophallic membrane with short membranous dorsal lobe, subtending dorsal phallic spine, weakly sclerotized, paired dorsolateral lobes, and sclerotized ventromesal spine; ventral spine relatively short, curved, apex acute; phallotremal spines absent.

Holotype male: BRAZIL: Rio de Janeiro: Parque Nacional do Itatiaia, Rio Campo Belo, trail to Veu da Noiva, 22°25'42"S, 044°37'10"W, 1310 m, 24.xi.2001, Holzenthal, Blahnik, Neto & Paprocki (UMSP000047063) (pinned) (MZUSP).

Paratypes: BRAZIL: Rio de Janeiro: same locality and date as holotype — 1 male, 2 females (pinned) (UMSP); Nova Friburgo, 22°16'00"S, 042°31'59"W, 950 m, 20.iv.1977, C & O Flint — 1 male (pinned) (NMNH).

Etymology. This species is named *M. latispina*, Latin for wide spine, in reference to the widened dorsal phallic spine of the male, which helps to distinguish this species from its closely related congeners.

***Mortoniella longispina*, new species**
Fig. 11

This member the *M. albolineata* subgroup of species is distinguished by the following diagnostic character set: Fused inferior appendages without distinct ventromesal process; endophallic spine very large, prominent, and strongly curved; paramere appendages short, uniform in width; and dorsal phallic spine angularly upturned apically. It is perhaps most similar overall to *Mortoniella guahybae*, n. sp., but differs particularly in its much more

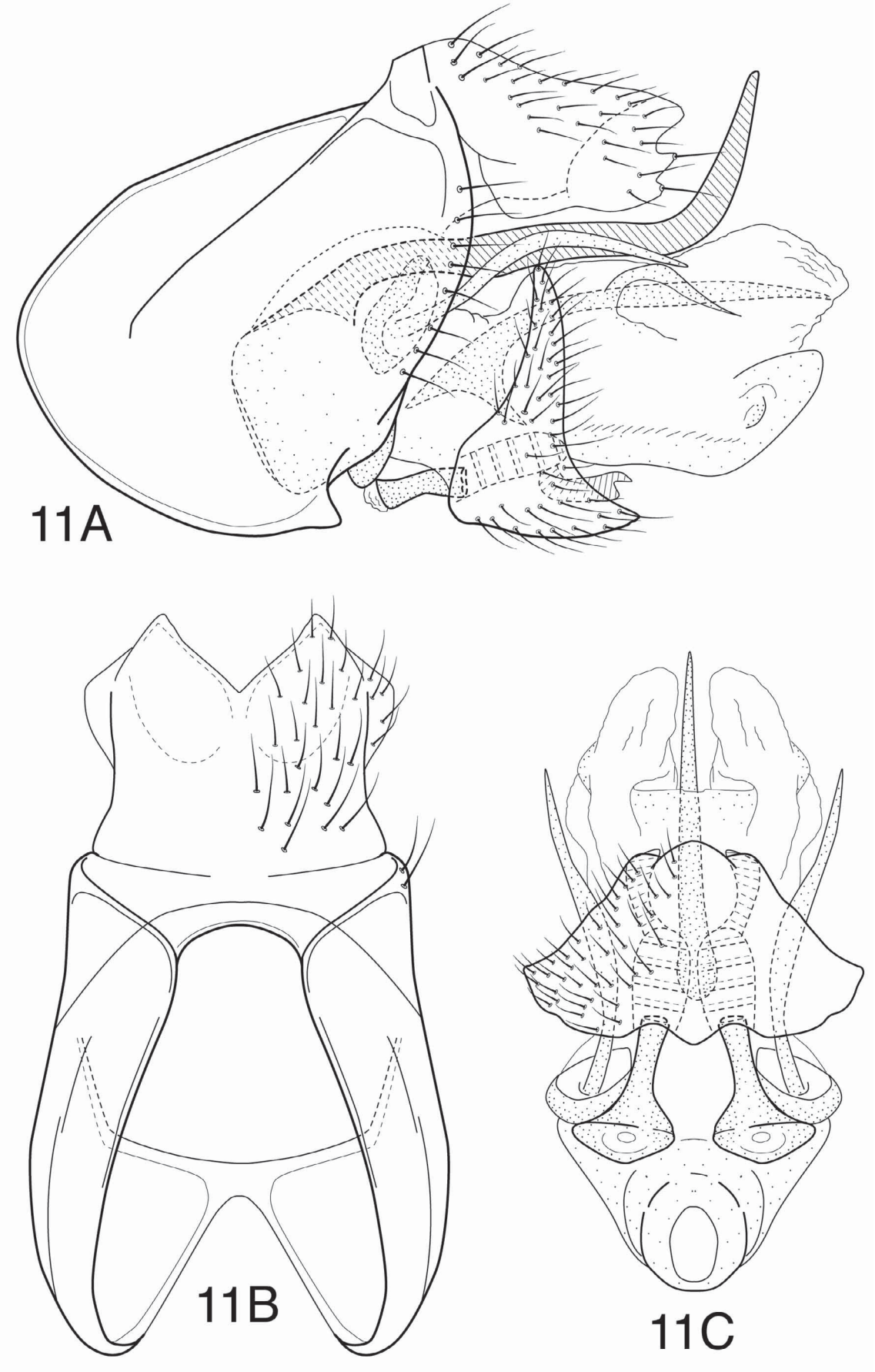


FIGURE 11. *Mortoniella longispina*, new species, male genitalia: A—lateral; B—segment IX and tergum X, dorsal; C—phallic ensemble, ventral.

prominent endophallic spine and in that the apicolateral processes of tergum X are less narrowed and the mesal incision of that structure is wider and V-shaped.

Adult. Length of forewing: male 3.6 mm, female 3.6–4.0 mm. Forewing with forks I, II, and III present, hind wing with fork II only. Spur formula 0:4:4. Overall color medium brown. Legs brown, apices of tarsi whitish, tibial spurs somewhat darker than legs, but not strongly contrasting in color. Antennae with apical part of basal segments whitish. Wing bar at anastamosis more or less distinctly marked with whitish setae, bar narrow, discontinuous.

Male genitalia. Ventral process of segment VI laterally compressed, ventrally projecting, subtriangular, wide basally, rounded to subacute apically. Segment IX nearly evenly rounded anterolaterally, length greatest midlaterally, posterolateral margin convexly rounded, narrowing ventrally; segment deeply excised dorsomesally and ventromesally, forming lateral lobes, lobes separated dorsomesally by much less than 1/2 width of segment. Tergum X with broad V-shaped mesal excision and weakly projecting lateral lobes; lateral lobes acute apically, as viewed dorsally, short and rounded as viewed laterally. Inferior appendages without ventromesal projection; laterally, on each side, with setose, tapering, dorsally-directed lobes. Mesal pockets of fused inferior appendages with apical processes moderately elongate, curved, distinctly thickened through most of length. Paramere appendages short, narrow, uniform in width, apices acute, appendages somewhat downcurved. Dorsal phallic spine, as viewed laterally, more or less uniform in width, strongly upturned in apical 1/3rd, apex cute. Phallicata with weakly projecting, broadly rounded, sclerotized dorsolateral processes; ventral margin moderately projecting, lightly sclerotized, with rounded apical projection. Endophallic membrane with very elongate, sclerotized spine; spine curved at base, straight apically, apex acute; phallotremal spines absent.

Holotype male: BRAZIL: Santa Catarina: Urubici, Rio Canoas, road to Campo dos Padres, 28°00'15"S, 049°22'24"W, 1100 m, 7.iii.1998, Holzenthal, Froehlich & Paprocki (UMSP000029822) (pinned) (MZUSP).

Paratypes: BRAZIL: Santa Catarina: same data as holotype —25 females (pinned) (MZUSP, UMSP).

Etymology. This species is named *M. longispina*, Latin for long spine, in reference to the very long spine of the endophallic membrane of the male.

Mortoniella paraguaiensis, new species

Fig. 12

Mortoniella paraguaiensis is closely related to a group of species including *M. paraunota*, n. sp., *M. unota*, and *M. uruguaiensis*, n. sp. All of these species are characterized by a dorsal phallic spine that, in lateral view, has a sharply upturned, blade-like apex, accompanied by a slight ventral deflection at the point of inflexion. In dorsal view the spine is very narrow apically and distinctly widened at the point of inflection. Other useful characters defining the group include the absence of a ventromesal process on the inferior appendages and a tergum X with sharply pointed apicolateral processes and a relatively narrow mesal incision. All of the species except *M. paraunota* also have short paramere appendages and inferior appendages with the dorsal apices at least somewhat recurved. *Mortoniella paraguaiensis* is most similar to *M. unota*, especially in having the apex of the dorsal phallic spine very sharply upturned and in having a 0:3:4 spur formula. It differs in the more robust dorsolateral processes of the phallicata and in having the lateral lobes of the inferior appendages with only a minute recurved apex, rather than a strongly bent one.

Adult. Length of forewing: male 2.7–2.8 mm. Forewing with forks I, II, and III present, hind wing with fork II only. Spur formula 0:3:4. Overall color medium brown. Legs same color, apices of tarsi whitish, tibial spurs somewhat darker than legs, but not strongly contrasting in color. Wing bar at anastamosis more or less distinctly marked with whitish setae, bar discontinuous

Male genitalia. Ventral process of segment VI laterally compressed, ventrally projecting, wide basally, narrowed and subacute apically, length about 2 times width at base. Segment IX nearly evenly rounded anterolaterally, length greatest midlaterally, posterolateral margin convexly rounded, narrowing ventrally; segment deeply excised dorsomesally and ventromesally, forming lateral lobes, lobes separated dorsomesally by much less than 1/2 width of segment. Tergum X with somewhat angular, U-shaped mesal excision and distinctly projecting lateral lobes; lateral lobes acute apically, as viewed both dorsally and laterally. Inferior appendages without ventromesal projection; laterally, on each side, with setose, tapering, dorsally-directed lobes, apices of lobes each with short, spine-like, posteriorly angled process. Mesal pockets of fused inferior appendages with apical processes short, dorsally

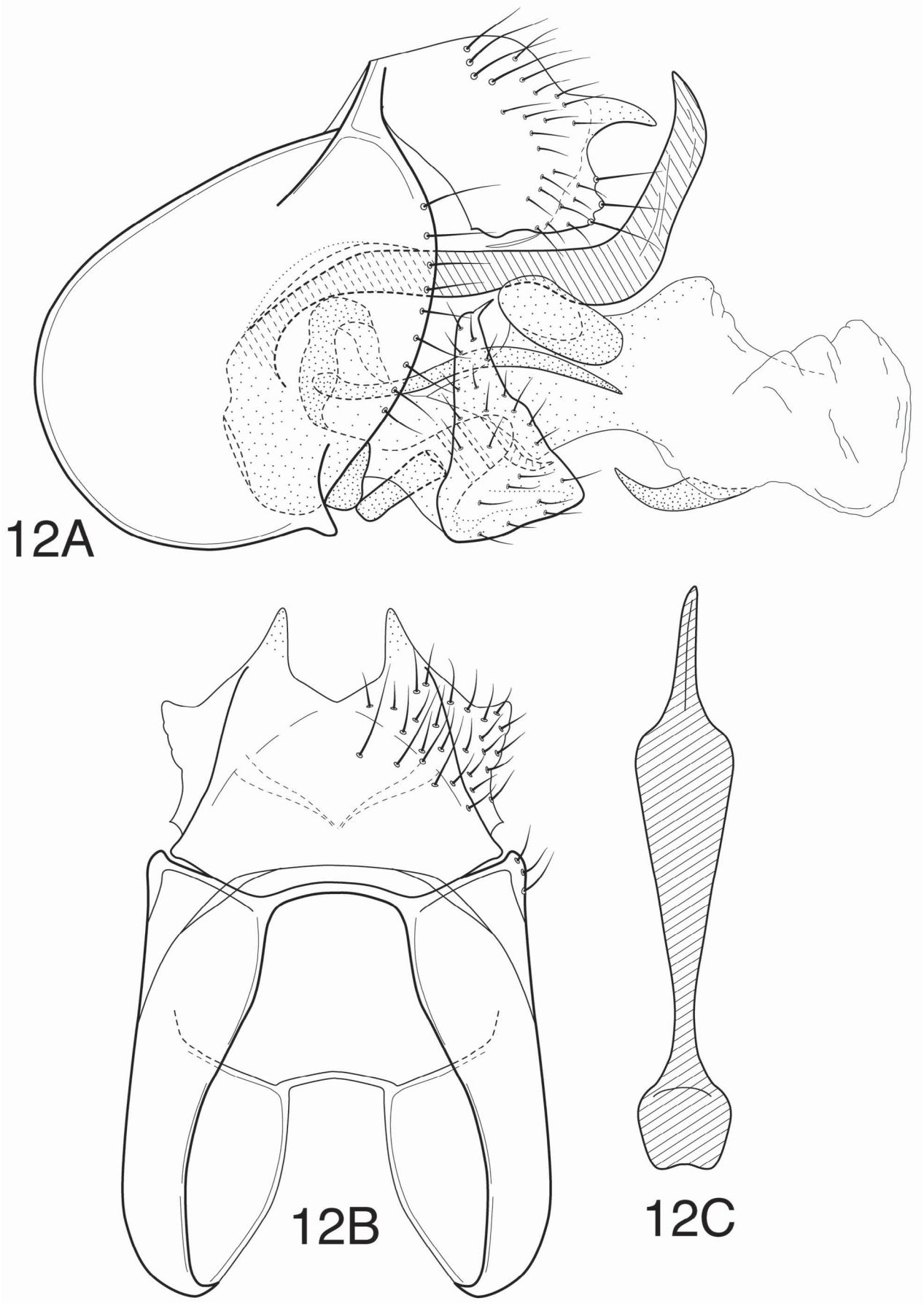


FIGURE 12. *Mortoniella paraguaiensis*, new species, male genitalia: A—lateral; B—segment IX and tergum X, dorsal; C—dorsal phallic spine, dorsal.

curved. Paramere appendages short, narrow, uniform in width, apices acute, appendages somewhat downcurved. Dorsal phallic spine, as viewed laterally, with apical 1/3rd sharply upturned, apex slightly recurved, spine with distinct sinuous deflection on ventral margin at point of upturn; in dorsal view, very distinctly widened from base to point of inflection, apical part abruptly narrowed, making overall appearance of apex blade-like. Phallicata with strongly sclerotized dorsal process, subtending dorsal phallic spine, and broad, sclerotized, posteriorly directed dorsolateral processes. Endophallic membrane relatively simple, with short, stout, curved, ventromesal spine; phallotremal spines absent.

Holotype male: PARAGUAY: Alto Parana: SE Naranja, ca. 20 km S. Pto. Stroessner, 18-24.viii.1988, L E Peña G (UMSP000118564) (pinned) (NMNH).

Paratypes: PARAGUAY: Alto Parana: same locality and date as holotype — 1 male (pinned) (NMNH).

Etymology. This species is named *M. paraguaiensis* for the country of origin of the holotype of this species.

***Mortoniella parauna*, new species**

Fig. 13

This is a somewhat nondescript species, best diagnosed by the following set of characters considered together: Fused inferior appendages without an apicomesal process; elongate paramere appendages, somewhat widened preapically; and an upturned dorsal phallic spine with an acute apex, as viewed both laterally and dorsally. The lightly sclerotized ventral projection of the phallicata is also probably diagnostic, but may be more difficult to discern, depending on how the specimen has been cleared.

Adult. Length of forewing: male 2.5–2.9 mm, female 2.5–3.3 mm. Forewing with forks I, II, and III present, hind wing with fork II only. Spur formula 0:4:4. Overall color light brown. Legs yellowish, tibial spurs darker in color, contrasting with legs. Wing bar at anastamosis more or less distinctly marked with whitish setae, bar discontinuous.

Male genitalia. Ventral process of segment VI laterally compressed, ventrally projecting, subtriangular, wide basally, acute apically. Segment IX nearly evenly rounded anterolaterally, length greatest midlaterally, posterolateral margin weakly, convexly rounded dorsally, narrowing ventrally; segment deeply excised dorsomesally and ventromesally, forming lateral lobes, lobes separated dorsomesally by much less than 1/2 width of segment. Tergum X with relatively shallow, U-shaped mesal excision and projecting lateral lobes; lateral lobes moderately elongate, apices acute to subacute as viewed both dorsally and laterally. Inferior appendages without ventromesal projection; laterally, on each side, with setose, dorsally-directed, non-tapering lobes, rounded apically. Mesal pockets of fused inferior appendages with apical processes short, dorsally curved. Paramere appendages elongate, narrow, slightly widened in apical 1/3rd, apices acute. Dorsal phallic spine, as viewed laterally, more or less uniform in width, upturned in apical 1/2, apex narrowed and acute in both lateral and dorsal views. Phallicata with sclerotized dorsal process subtending dorsal phallic spine, and, sclerotized, laterally directed dorsolateral processes; ventrally with short, lightly sclerotized mesal projection. Endophallic membrane apparently simple in structure, with sclerotized ventromesal spine; ventral spine moderately elongate, stout, curved, apex acute; phallotremal spines absent.

Holotype male: BRAZIL: Minas Gerais: Rio Paraúna, 3 km S Santana do Riacho, 19°10'59"S, 043°43'29"W, 650 m, 16.ii.1998, Holzenthal & Paprocki (UMSP000031878) (pinned) (MZUSP).

Paratypes: BRAZIL: Minas Gerais: same locality as holotype, 11.xi.2001, Holzenthal, Amarante, Blahnik, & Paprocki — 5 males, 21 females (alcohol) (UMSP, NMNH).

Etymology. This species is named *M. parauna*, used as a noun in apposition, for Rio Parauna, near which the type specimen for the species was collected.

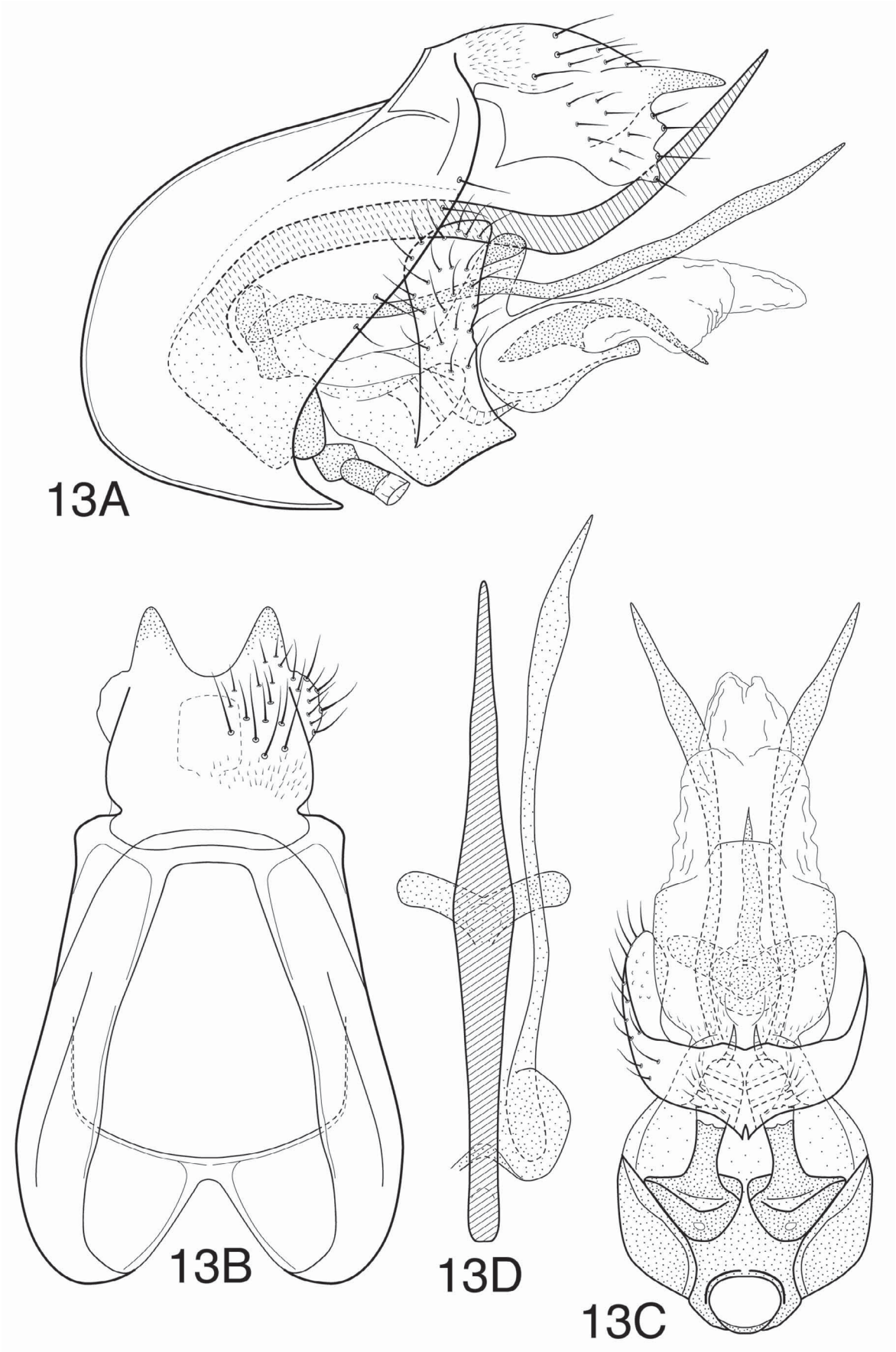


FIGURE 13. *Mortoniella parauna*, new species, male genitalia: A—lateral; B—segment IX and tergum X, dorsal; C—phallic ensemble, ventral; D— dorsal phallic spine, paramere appendages, and dorsolateral processes of phallicata, dorsal.

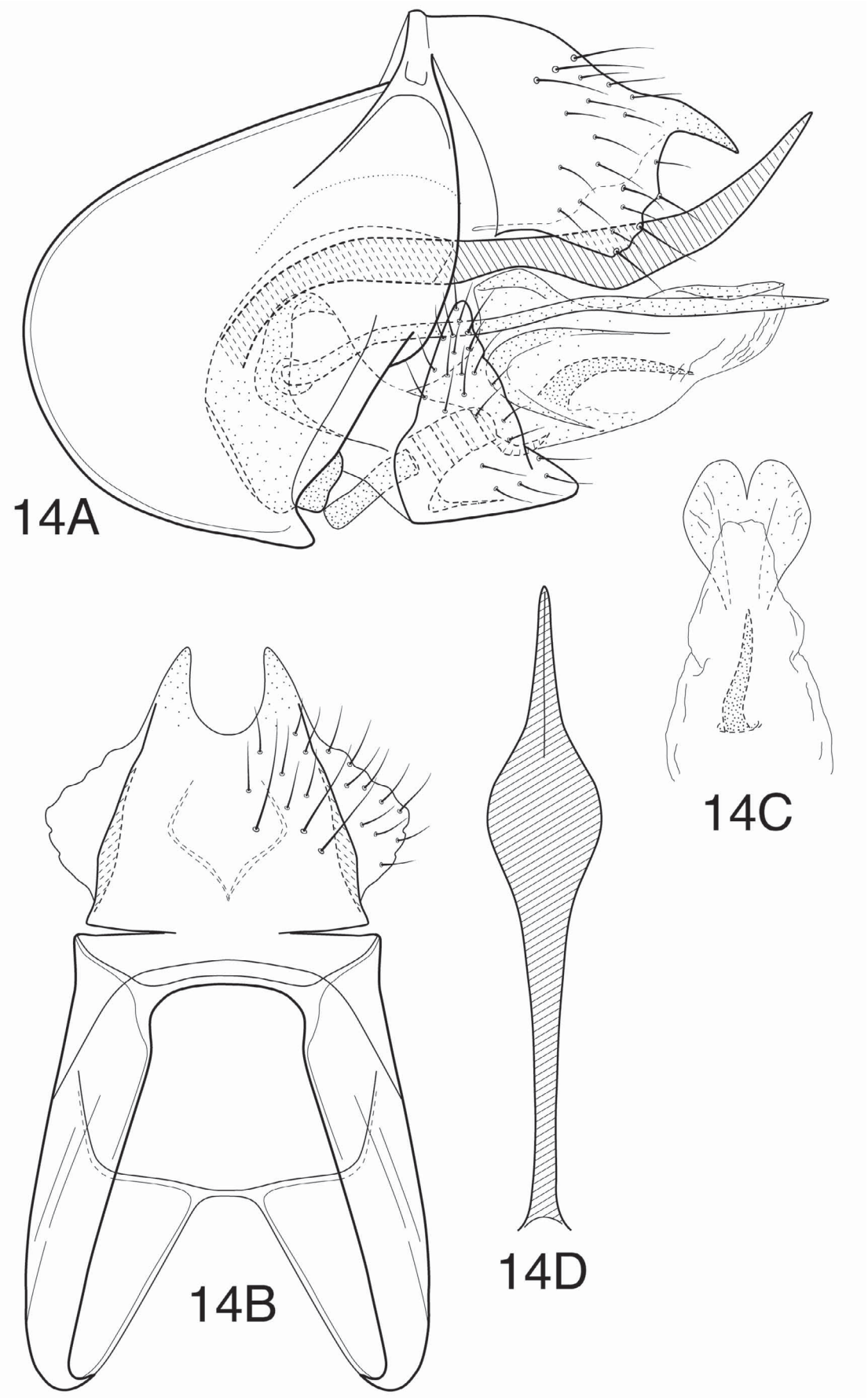


FIGURE 14. *Mortoniella paraunota*, new species, male genitalia: A—lateral; B—segment IX and tergum X, dorsal; C—apex of endophallic membrane, dorsal; D—dorsal phallic spine, dorsal.

***Mortoniella paraunota*, new species**
Fig. 14

As discussed under *Mortoniella paraguaiensis*, n. sp., *M. paraunota*, n. sp., is closely related to a group of species, including *M. paraguaiensis*; *M. unota*; and *M. uruguaiensis*, n. sp. All of these species are characterized by a dorsal phallic spine that, in lateral view, has a sharply upturned, blade-like apex, accompanied by a slight ventral deflection at the point of inflection. In dorsal view the spine is very narrow apically and distinctly widened at the point of inflection. *Mortoniella paraunota* differs from these other species in having longer paramere appendages, inferior appendages with dorsal projections whose apices are not at all recurved, and the presence of dorsolateral lobe-like extensions on the endophallic membrane, which serve as guides for the apices of the paramere appendages. The apical inflection of the dorsal phallic spine is most similar to *M. uruguaiensis* (less strongly recurved than either *M. paraguaiensis* or *M. unota*). However, it differs significantly from *M. paraunota* in the structure of the dorsolateral processes of the phallicata.

Adult. Length of forewing: male 2.5–2.9 mm; female 2.5–3.3 mm. Forewing with forks I, II, and III present, hind wing with fork II only. Spur formula 0:4:4. Overall color light brown. Legs yellowish, tibial spurs darker than legs, contrasting in color. Wing bar at anastamosis more or less distinctly marked with whitish setae, bar discontinuous.

Male genitalia. Ventral process of segment VI laterally compressed, ventrally projecting, subtriangular, wide basally, acute apically. Segment IX nearly evenly rounded anterolaterally, length greatest midlaterally, posterolateral margin convexly rounded, narrowing ventrally; segment deeply excised dorsomesally and ventromesally, forming lateral lobes, lobes separated dorsomesally by much less than 1/2 width of segment. Tergum X with narrow, U-shaped mesal excision, extending less than 1/2 length of segment, and projecting lateral lobes; lateral lobes acute apically, as viewed both dorsally and laterally. Inferior appendages without ventromesal projection; laterally, on each side, with setose, tapering, dorsally-directed lobes, apices of lobes unmodified. Mesal pockets of fused inferior appendages with apical processes short, dorsally curved. Paramere appendages elongate, narrow, uniform in width, apices acute. Dorsal phallic spine, as viewed laterally, with apical 1/3rd gradually upturned, apex posteriorly directed, spine with distinct sinuous deflection on ventral margin at point of upturn; in dorsal view, very distinctly widened at inflection, apical part abruptly narrowed, making overall appearance of apex blade-like. Phallicata with sclerotized, subtruncate dorsal process, subtending dorsal phallic spine, somewhat projecting laterally; laterally with weakly projecting, broadly rounded, depressed projections on either side, subtending paramere appendages. Endophallic membrane (or dorsal extension of phallicata), with lightly sclerotized, depressed projections, projecting over apices of paramere appendages, and short, stout, curved, ventromesal spine; phallotremal spines absent.

Holotype male: BRAZIL: Santa Catarina: Seara (Nova Teutônia), 27°11'S, 052°23'W, 300-500 m, 10.x.1964, F Plaumann (UMSP000118566) (pinned) (MZUSP).

Paratypes: ARGENTINA: Entre Rios: Ao. Piray Mini W, Dos Hermanas, 33°10'00"S, 058°53'59"W, 23.xi.1973, O S Flint — 4 males, 17 females (alcohol) (NMNH, UMSP); **BRAZIL: Santa Catarina:** same locality as holotype, ix.1964, F Plaumann — 1 male (pinned) (NMNH); same locality, 12.x.1964, F Plaumann — 1 male (pinned) (NMNH).

Etymology. This species is named *M. paraunota*, from the Greek word *para*, meaning near or by, and referring to the similarity of this species to *M. unota*.

***Mortoniella teutona* (Mosely, 1939)**
Fig. 15

Mexitrichia teutona Mosely, 1939: 223; Flint 1963: 474 [distribution]; Flint 1966: 2 [as synonym of *M. albolineata*]; Flint 1972: 226 [resurrected from synonymy; distribution]; Angrisano 1997: 48 [distribution].
Mexitrichia teutonia [sic] Mosely; Flint *et al*. 1999: 27.
Mortoniella teutona (Mosely); Blahnik & Holzenthal 2008: 69 [*M. leroda* species group].

Mortoniella teutona belongs to a species group of closely related species, including *M. albolineata*, *M. dolonis*, and *M. latispina*. All of these species have the character combination of inferior appendages with a distinct, asymmetri-

cal mesal process, dorsal phallic spine with a depressed, apically rounded, spatulate apex, and endophallic membrane with membranous lobes. It is most similar to *M. latispina*; in both species the ventral endophallic spine is relatively short and curved and both species have the paramere appendages slightly widened preapically. The ventral endophallic spine is much more prominent in the other 2 species and both of these species have the paramere appendages uniform in width throughout their length. *Mortoniella teutona* differs from *M. latispina* in several details, the most diagnostic of which is a dorsal phallic spine that is either not at all, or only slightly widened in the middle, as viewed dorsally. The major point of flexion of this spine is more basal than in *M. latispina*. Other differences include a mesal excavation of tergum X that appears more V-shaped than U-shaped, and differences in the structure of the membranous lobes of the endophallic membrane. In *M. teutona* the dorsal lobes, which parallel the dorsal phallic spine, are relatively elongate and the apicolateral lobe is more or less divided into 2 sublobes which are not at all sclerotized. However, this is evident only in specimens in which this structure is expanded.

Adult. Length of forewing: male 2.6–3.8 mm, female 3.3–4.8 mm. Forewing with forks I, II, and III present, hind wing with fork II only. Spur formula 0:4:4. Overall color medium brown. Legs brown, apices of tarsi whitish, tibial spurs somewhat darker than legs, but not strongly contrasting in color. Antennae with apical part of basal segments whitish. Wing bar at anastamosis indistinct, marked with whitish setae on anal margin.

Male genitalia. Ventral process of segment VI laterally compressed, ventrally projecting, short, wide basally, rounded apically. Segment IX nearly evenly rounded anterolaterally, length greatest midlaterally, posterolateral margin convexly rounded dorsally, narrowing ventrally; segment deeply excised dorsomesally and ventromesally, forming lateral lobes, lobes separated dorsomesally by much less than 1/2 width of segment. Tergum X with broad, V-shaped mesal excision and weakly projecting lateral lobes; lateral lobes subtriangular, broad basally, apices subacute as viewed both dorsally and laterally. Inferior appendages with prominent and somewhat asymmetrically developed ventromesal projection; laterally, on each side, with setose, tapering, dorsally-directed lobes. Mesal pockets of fused inferior appendages with apical processes short, dorsally curved. Paramere appendages elongate, narrow, slightly widened in apical 1/3rd, apices acute. Dorsal phallic spine, as viewed laterally, more or less uniform in width, gradually upturned in apical 1/2, apex narrowed and acute; in dorsal view, slightly widened in middle, apex rounded, spatulate (depressed). Phallicata with sclerotized, anteriorly directed process, subtending dorsal phallic spine, and moderately elongate, narrow, projecting lateral processes. Endophallic membrane with membranous dorsal lobe, subtending dorsal phallic spine, membranous, divided or subcontiguous lateral lobes on either side, and sclerotized ventromesal spine; ventral spine relatively short, curved, apex acute; phallotremal spines absent

Material examined. **BRAZIL: Parana:** Rio Mãe Catira, 10 km N Porto de Cima, 25°21'49"S, 048°52'28"W, 200 m, 8-9.xii.1997, Holzenthal & Huisman — 1 male, 5 females (pinned) (UMSP), 2 males, 6 females (pinned) (MZUSP); Rio Jacarei, ca 5 km S BR 277, 25°33'56"S, 048°42'10"W, 80 m, 9.xi.1997, Holzenthal & Huisman — 4 males, 5 females (pinned) (UMSP); **Rio De Janeiro:** Rio Sousa, in Cachoeiras de Macacú, 22°26'34"S, 042°37'57"W, 150 m, 16.iii.1996, Holzenthal, Rochetti & Oliveira — 13 males, 52 females (pinned); 120 males, 627 females (alcohol) (UMSP; MZUSP); Parque Nacional da Serra dos Orgãos, Trilha das Ruínas, Guapimirim, 22°29'41"S, 042°59'44"W, 940 m, 28.ii.2002, Blahnik & Paprocki — 5 males, 5 females (alcohol) (UMSP); Encontro dos Rios (Macaé/Bonito), 6 km S Lumiar, 22°23'29"S, 042°18'42"W, 600 m, 10.iii.2002, Holzenthal, Blahnik, Paprocki & Prather — 13 males, 11 females (pinned), 118 males (alcohol) (UMSP; MZUSP); Parati, Riacho PerequÍ-açu, Sitio Cachoeira Grande, 23°13'14"S, 044°47'24"W, 120 m, 25.ix.2002, Blahnik, Prather, Melo, Froehlich & Silva — 37 males, 59 females (pinned), 17 males, 57 females (alcohol) (UMSP); Parati, trib. to Riacho PerequÍ-açu, 23°12'50"S, 044°47'29"W, 190 m, 26.ix.2002, Blahnik, Prather, Melo, Froehlich & Silva — 27 males (alcohol), (UMSP); Parati, Riacho PerequÍ-açu, 23°13'27"S, 044°46'09"W, 30 m, 24.ix.2002, Blahnik, Prather, Melo, Froehlich & Silva — 8 males, 72 females (pinned), 11 males, 42 females (alcohol) (UMSP; MZUSP); **Santa Catarina:** Parque Ecológica Spitzkopf, confl. Rio Ouro & Rio Caeté, 27°00'21"S, 049°06'42"W, 140 m, 3.iii.1998, Holzenthal, Froehlich & Paprocki — 16 males, 14 females (pinned), 13 males, 34 females (alcohol), (UMSP); same locality, 25.xi.2003, Holzenthal, Paprocki & Calor — 3 males, 14 females (pinned), 27 males, 54 females (alcohol), (UMSP); Rio Caeté above 1st falls, 27°00'21"S, 049°06'42"W, 170 m, 4.iii.1998, Holzenthal, Froehlich & Paprocki — 5 males, 5 females (pinned), 4 males, 5 females (alcohol) (UMSP); Riberão Gaspar, Belchio Alto, Gaspar, 26°48'22"S, 049°02'28"W, 120 m, 27.xi.2003, Holzenthal, Paprocki & Calor — 3 males, 1 female pinned) (UMSP); Nova Teutonia, 27°11'S, 052°23'W, 300-500 m, ix.1963, F Plaumann — 48 males (alcohol) (NMNH); **São Paulo:** Pedregulho, Riberão São Pedro, 20°09'07"S, 047°30'38"W, 617 m, 16.xi.2003, Holzenthal, Paprocki &

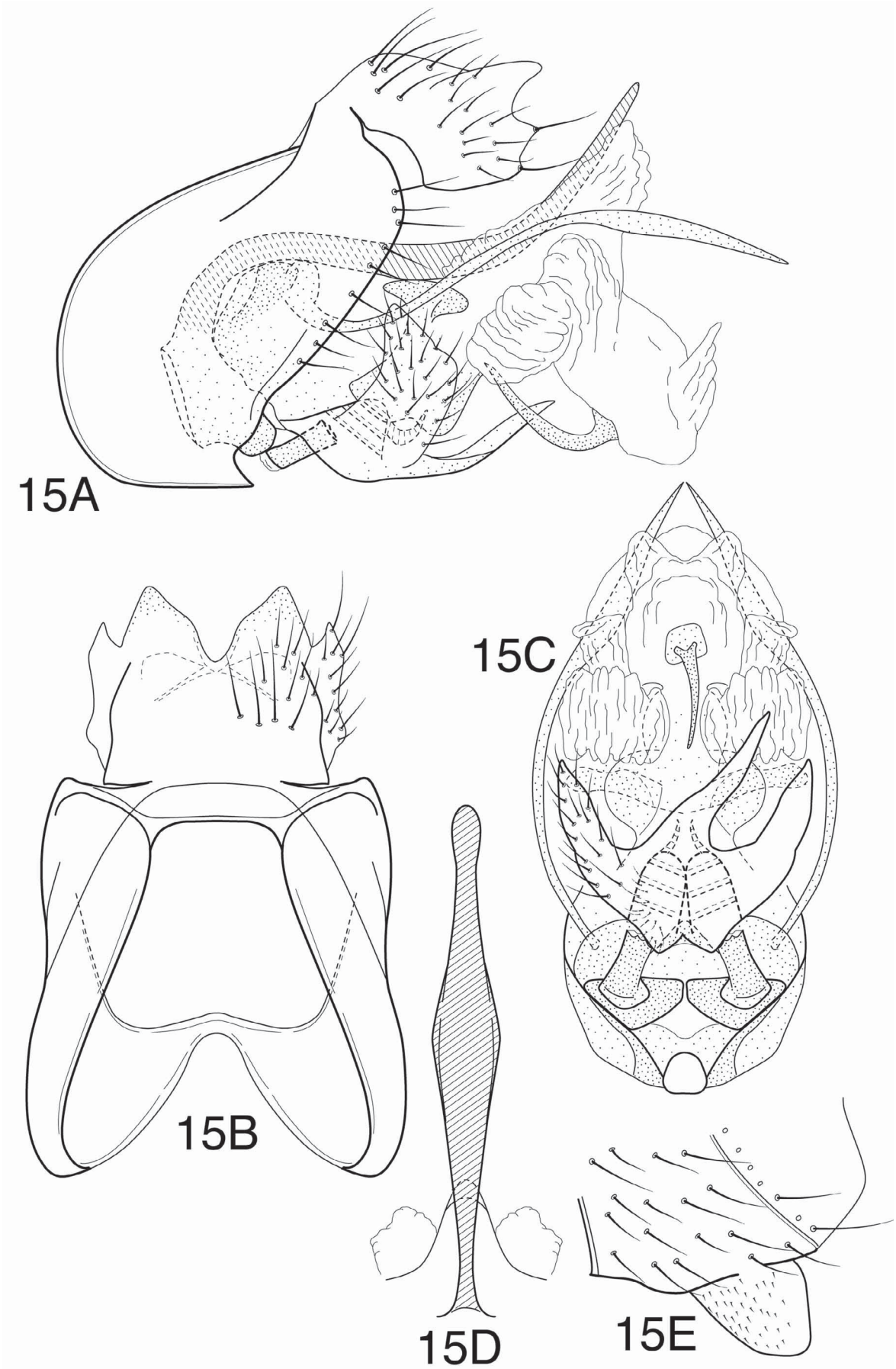


FIGURE 15. *Mortoniella teutona* (Mosely), male genitalia: A—lateral; B—segment IX and tergum X, dorsal; C—phallic ensemble, ventral; D—dorsal phallic spine, dorsal; E—ventral process of segment VI, lateral.

Calor — 29 males, 1 female (alcohol) (UMSP); 11 km SE Bananal, small stream on São Paulo Route 247, 22°45'41"S, 044°23'11"W, 675 m, 23.ix.2002, Blahnik, Prather, Melo, Froehlich & Silva — 5 males, 15 females (pinned) (UMSP); Altinópolis, Cachoeira Dos Macacos, 20°55'23"S, 047°22'45"W, 759 m, 18.xi.2003, Holzenthal, Paprocki & Calor — 1 male (alcohol) (UMSP); Altinópolis, Fazenda São João da Mata, Rio Baguassu, 21°00'35"S, 047°28'54"W, 745 m, 19-21.xi.2003, Holzenthal, Paprocki & Calor — 8 males, 14 females (pinned), 164 males, 114 females (alcohol) (UMSP; MZUSP).

Distribution. Argentina, Brazil, Uruguay.

***Mortoniella truncata*, new species**

Fig. 16

Mortoniella truncata is most closely related to *M. asymmetris*, n. sp. Both species are characterized by having paramere appendages asymmetrically developed and differing in length, the left one shorter than the right. Other character similarities include upright processes bordering the paramere appendages than emerge near the ventral margin of the phallicata, and mesal pocket-like structures of the inferior appendages with very elongate, sinuous, spine-like apical processes which appear to be fused or semi-fused mesally. *Mortoniella truncata* is most easily and diagnostically distinguished from *M. asymmetris* by having a tergum X with truncate, rather than acute, apicolateral projections. As discussed in the diagnosis for *M. asymmetris*, both of these species seem to be closely related to the group of species discussed under *M. unota*, agreeing in having a dorsal phallic spine that is sharply upturned apically, with a slight, but distinct, ventral deflection at the point of inflection, and with the spine, in dorsal view, distinctly widened at the inflection point and narrow apically.

Adult. Length of forewing: male 2.2–2.4 mm, female 2.3–2.5 mm. Forewing with forks I, II, and III present, hind wing with fork II only. Spur formula 0:3:4. Overall color, in alcohol, medium brown. Legs brown, apices of tarsi whitish, tibial spurs somewhat darker than legs, but not strongly contrasting in color. Wing bar at anastamosis indistinct (in alcohol), marked with whitish setae on anal margin.

Male genitalia. Ventral process of segment VI laterally compressed, somewhat posteriorly directed, subtriangular, wide basally, acute apically. Segment IX nearly evenly rounded anterolaterally, length greatest midlaterally, posterolateral margin weakly, convexly rounded, narrowing ventrally; segment deeply excised dorsomesally and ventromesally, forming lateral lobes, lobes separated dorsomesally by much less than 1/2 width of segment. Tergum X with narrow, U-shaped mesal excision, extending about 1/2 length of segment, and projecting lateral lobes; lateral lobes with apices broadly truncate as viewed dorsally, subacute as viewed laterally. Inferior appendages without ventromesal projection; laterally, on each side, with setose, tapering, dorsally-directed lobes. Mesal pockets of fused inferior appendages with apical processes moderately elongate, sinuous, more or less fused mesally. Paramere appendages uniformly narrow, asymmetrically developed in length and orientation, the left short and downturned, the right long and nearly straight. Dorsal phallic spine, as viewed laterally, sharply upturned in apical 1/3rd, with distinct sinuous deflection on ventral margin at point of upturn; in dorsal view, very distinctly widened in middle, apical part abruptly narrowed, apex acute. Phallicata with weakly sclerotized dorsomesal process and paired, upturned, lightly sclerotized processes arising from basoventral margin; laterally with asymmetrical, lightly sclerotized areas, paralleling paramere appendages. Endophallic membrane somewhat globular in shape, simple in structure, without apparent ventromesal spine; phallotremal spines absent.

Holotype male: BRAZIL: Minas Gerais: spring trib to Rio Macauba, near Pandeiros, 15°28'38"S, 044°44'38"W, 525 m, 17.xi.2001, Paprocki & Blahnik (UMSP000208501) (alcohol) (MZUSP).

Paratypes: BRAZIL: Minas Gerais: same locality and date as holotype — 3 males, 17 females (alcohol) (UMSP).

Etymology. This species is named *M. truncata* for the truncate apices of tergum X of the male.

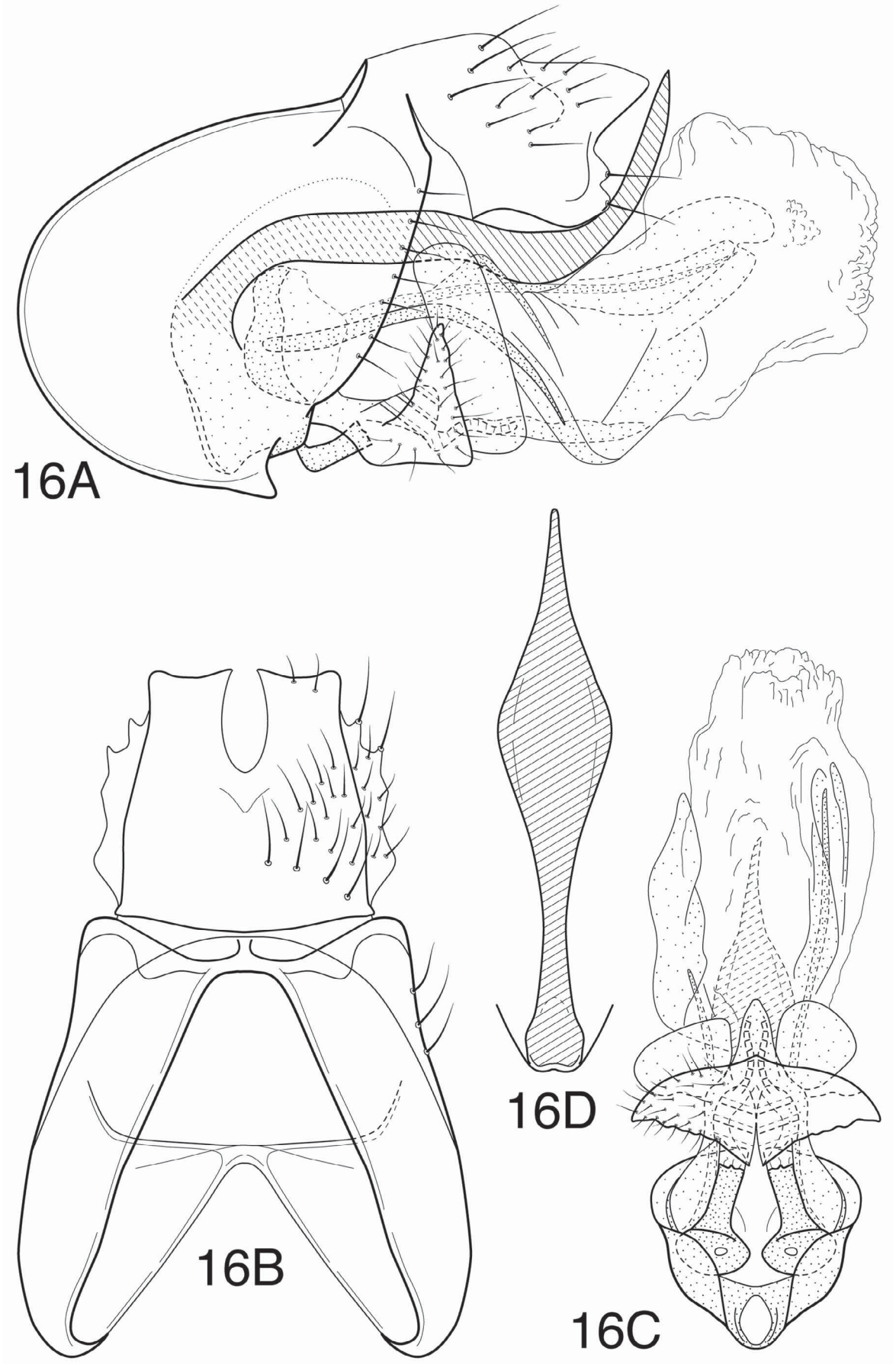


FIGURE 16. *Mortoniella truncata*, new species, male genitalia: A—lateral; B—segment IX and tergum X, dorsal; C—phallic ensemble, ventral; D—dorsal phallic spine, dorsal.

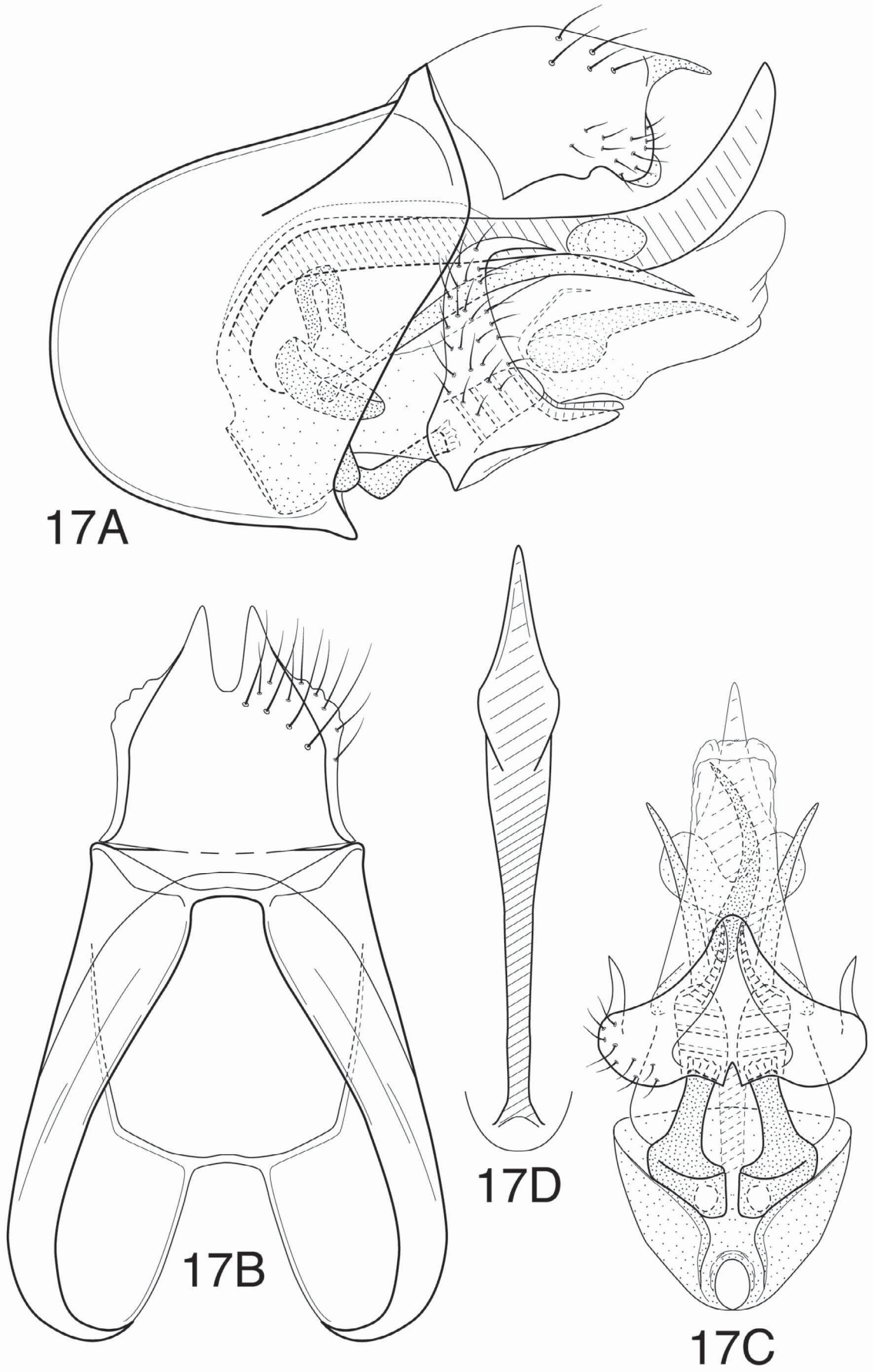


FIGURE 17. *Mortoniella unota* (Mosely), male genitalia: A—lateral; B—segment IX and tergum X, dorsal; C—phallic ensemble, ventral; D—dorsal phallic spine, dorsal.

***Mortoniella unota* (Mosely, 1939)**
Fig. 17

Mexitrichia unota Mosely, 1939: 223.
Mortoniella unota (Mosely); Blahnik & Holzenthal 2008: 69 [*M. leroda* species group]

As discussed in the diagnosis for *M. paraguaiensis* n.sp., *Mortoniella unota* is closely related to a group of species, including *M. paraguaiensis*; *M. paraunota*, n. sp.; and *M. uruguaiensis*, n. sp. All of these species are characterized by a dorsal phallic spine that, in lateral view, has a sharply upturned, blade-like apex, accompanied by a slight ventral deflection at the point of inflexion. In dorsal view the spine is narrow apically and distinctly widened at the point of inflection. All of the species except *M. paraunota* also have short paramere appendages and inferior appendages with the dorsal apices at least somewhat recurved. *Mortoniella unota* is most similar to *M. paraguaiensis*, especially in having the apex of the dorsal phallic spine very sharply upturned. It differs in the more rounded, less robust dorsolateral processes of the phallicata and in having inferior appendages with a very strongly bent or recurved apex.

Adult. Length of forewing: male 2.8–3.0 mm. Forewing with forks I, II, and III present, hind wing with fork II only. Spur formula 0:3:4. Overall color (in alcohol) yellowish-brown. Wing bar at anastamosis not evident (in alcohol).

Male genitalia. Ventral process of segment VI laterally compressed, ventrally projecting, subtriangular, wide basally, acute apically. Segment IX nearly evenly rounded anterolaterally, length greatest midlaterally, posterolateral margin weakly, convexly rounded dorsally, narrowing ventrally; segment deeply excised dorsomesally and ventromesally, forming lateral lobes, lobes separated dorsomesally by much less than 1/2 width of segment. Tergum X with narrow, U-shaped mesal excision, extending less than 1/2 length of segment, and distinctly projecting lateral lobes; lateral lobes acute apically, as viewed both dorsally and laterally. Inferior appendages without ventromesal projection, but mesal margin somewhat produced and rounded; laterally, on each side, with setose, tapering, dorsally-directed lobes, apices of lobes strongly posteriorly bent, apex acute. Mesal pockets of fused inferior appendages with apical processes moderately elongate, posteriorly curved. Paramere appendages short, narrow, nearly uniform in width, apices acute, appendages somewhat downcurved. Dorsal phallic spine, as viewed laterally, with apical 1/3rd strongly upturned, spine with distinct sinuous deflection on ventral margin at point of upturn; in dorsal view, very distinctly widened at point of inflection, apical part strongly narrowed, apex acute, making overall appearance of apex somewhat blade-like. Phallicata with mesally fused, ovately rounded dorsolateral processes. Endophallic membrane apparently simple in structure, with stout, curved, ventromesal spine; phallotremal spines absent

Material examined. **ARGENTINA: Entre Rios:** Ao. Piray Mini W, Dos Hermanas, 33°10'00"S, 058°53'59"W, 23.xi.1973, O S Flint — 1 male (alcohol) (NMNH); **BRAZIL: Santa Catarina:** Seara (Nova Teutônia), 27°11'S, 052°23'W, 300-500 m, x-xi.1971, F Plaumann - 1 male, 3 females (alcohol) (NMNH).

Distribution. Argentina, Brazil.

***Mortoniella uruguaiensis*, new species**
Fig. 18

As discussed in the diagnosis for *Mortoniella paraguaiensis*, n. sp., *M. uruguaiensis*, n. sp., is closely related to a group of species, including *M. paraguaiensis*; *M. paraunota*, n. sp.; and *M. unota*. All of these species are characterized by a dorsal phallic spine that, in lateral view, has a sharply upturned, blade-like apex, accompanied by a slight ventral deflection at the point of inflection. In dorsal view the spine is very narrow apically and distinctly widened at the point of inflection. All of the species except *M. paraunota* also have short paramere appendages and inferior appendages with the apices at least somewhat recurved. *Mortoniella uruguaiensis* is diagnostically characterized by the shape of the dorsolateral processes of the phallicata, which are very elongate and somewhat elevated basally. It resembles *M. paraunota* in that the apical inflection of the dorsal phallic spine is less pronounced than in the other 2 species of this group. It differs in the shorter paramere appendages, and in having the apex of the inferior appendages forming a short, but very strongly bent projection.

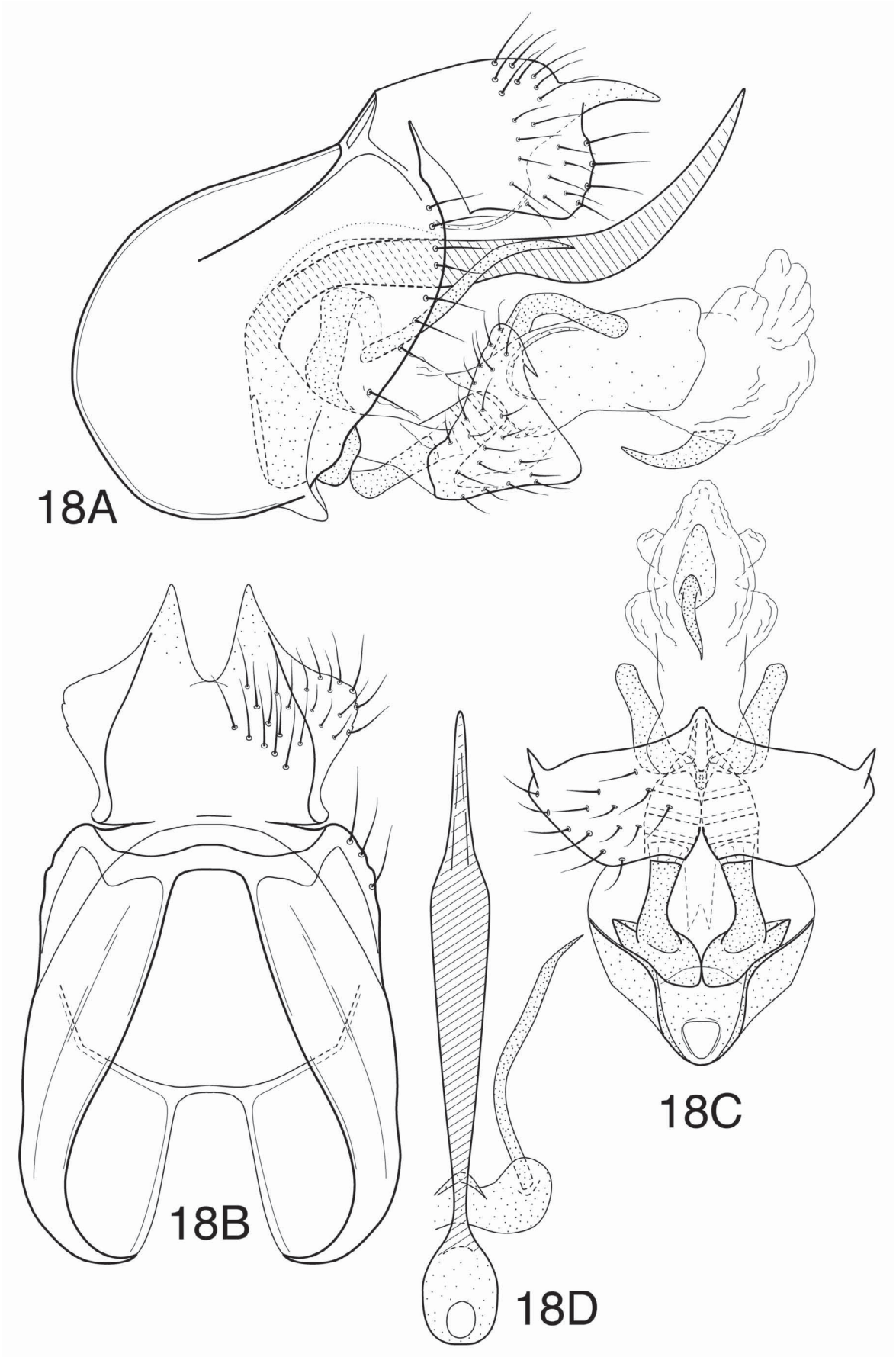


FIGURE 18. *Mortoniella uruguaiensis*, new species, male genitalia: A—lateral; B—segment IX and tergum X, dorsal; C—phallic ensemble, ventral; D—dorsal phallic spine and paramere appendage, dorsal.

Adult. Length of forewing: male 2.4-2.9 mm. Forewing with forks I, II, and III present, hind wing with fork II only. Spur formula 0:4:4. Overall color (in alcohol) yellowish-brown. Wing bar at anastamosis not evident (in alcohol).

Male genitalia. Ventral process of segment VI laterally compressed, ventrally projecting, subtriangular, wide basally, acute apically. Segment IX nearly evenly rounded anterolaterally, length greatest midlaterally, posterolateral margin convexly rounded dorsally, narrowing ventrally; segment deeply excised dorsomesally and ventromesally, forming lateral lobes, lobes separated dorsomesally by much less than 1/2 width of segment. Tergum X with narrow, U-shaped mesal excision and distinctly projecting lateral lobes; lateral lobes acute apically, as viewed both dorsally and laterally. Inferior appendages without ventromesal projection, but mesal margin weakly, angularly produced; laterally, on each side, with setose, tapering, dorsally-directed lobes, apices of lobes with short, angularly recurved projection, apex acute. Mesal pockets of fused inferior appendages with apical processes short, dorsally curved. Paramere appendages very short, narrow, uniform in width, apices acute, appendages somewhat downcurved. Dorsal phallic spine, as viewed laterally, upturned in apical 1/2, spine with distinct sinuous deflection on ventral margin at point of upturn; in dorsal view, slightly widened from base to point of inflection, apical part abruptly narrowed, making overall appearance of apex blade-like. Phallicata with mesally fused dorsolateral processes; dorsolateral processes distinctly sclerotized, elongate, narrow, posteriorly curved. Endophallic membrane simple, with short, stout, curved, ventromesal spine; phallotremal spines absent.

Holotype male: URUGUAY: Artigas: San Gregorio, 30°33'S, 057°52'W, Carbonell, Mesa, & San Martin (UMSP000124875) (alcohol) (NMNH).

Paratypes: BRAZIL: Santa Catarina: Nova Teutonia, 27°11'S, 052°23'W, 300-500 m, xi.1963, F Plaumann — 2 males (alcohol) (NMNH, MZUSP); **URUGUAY: Artigas:** same locality and date as holotype — 4 males (alcohol) (NMNH, UMSP).

Etymology. This species is named *M. uruguaiensis* for the country of origin of the holotype specimen.

M. pocita subgroup

This subgroup contains only this 1 distinctive species. The dorsal phallic spine is distinctive in that it is laterally compressed and expanded apically, somewhat as in *M. limona* (Flint, 1981). However, the overall resemblance to *M. limona* is not close and this character similarity is probably superficial. As in *M. punensis* (Flint, 1983), the dorsolateral processes of the phallicata are elongate and hook over the paramere appendages. However, they do not appear to cause the paramere appendages to cross over one another as in members of that group. From its original description and illustration, it seems that *M. armata* also has a somewhat similar development of the dorsolateral processes of the phallicata. However, *M. armata* can be easily distinguished because it has a dorsal phallic spine that it is trifurcate apically. Other character evidence for a relationship among the species discussed is tenuous and the overall differences considerable; we do not infer a necessary relationship among these species based on the processes of the phallicata alone. Additional characters defining the *M. pocita* subgroup include the structure of the inferior appendages, which lack a distinct dorsal projection, but have paired apicolateral projections, the absence of a ventromesal endophallic spine, and the presence of paired lateral endophallic spines (which could probably be interpreted as modified phallotremal spines).

Mortoniella pocita (Flint, 1983)

Fig. 19

Mexitrichia pocita Flint, 1983: 8; Rueda & Gibon 2008: 223 [illustration; distribution].
Mortoniella pocita (Flint); Blahnik & Holzenthal 2008: 69 [*M. leroda* species group].

This is a very distinctive species easily diagnosed by the structure of the dorsal phallic spine, which has its apex distinctively enlarged, in lateral view, but laterally compressed and narrow, as viewed dorsally, and by the shape and structure of the inferior appendages, which have elongate apicolateral projections.

Adult. Length of forewing: male 2.5–2.9 mm, female 2.6–3.5 mm. Forewing with forks I, II, and III present, hind wing with fork II only. Spur formula 0:3:4. Overall color, in alcohol, yellowish-brown. Wing bar at anastamosis not evident (in alcohol).

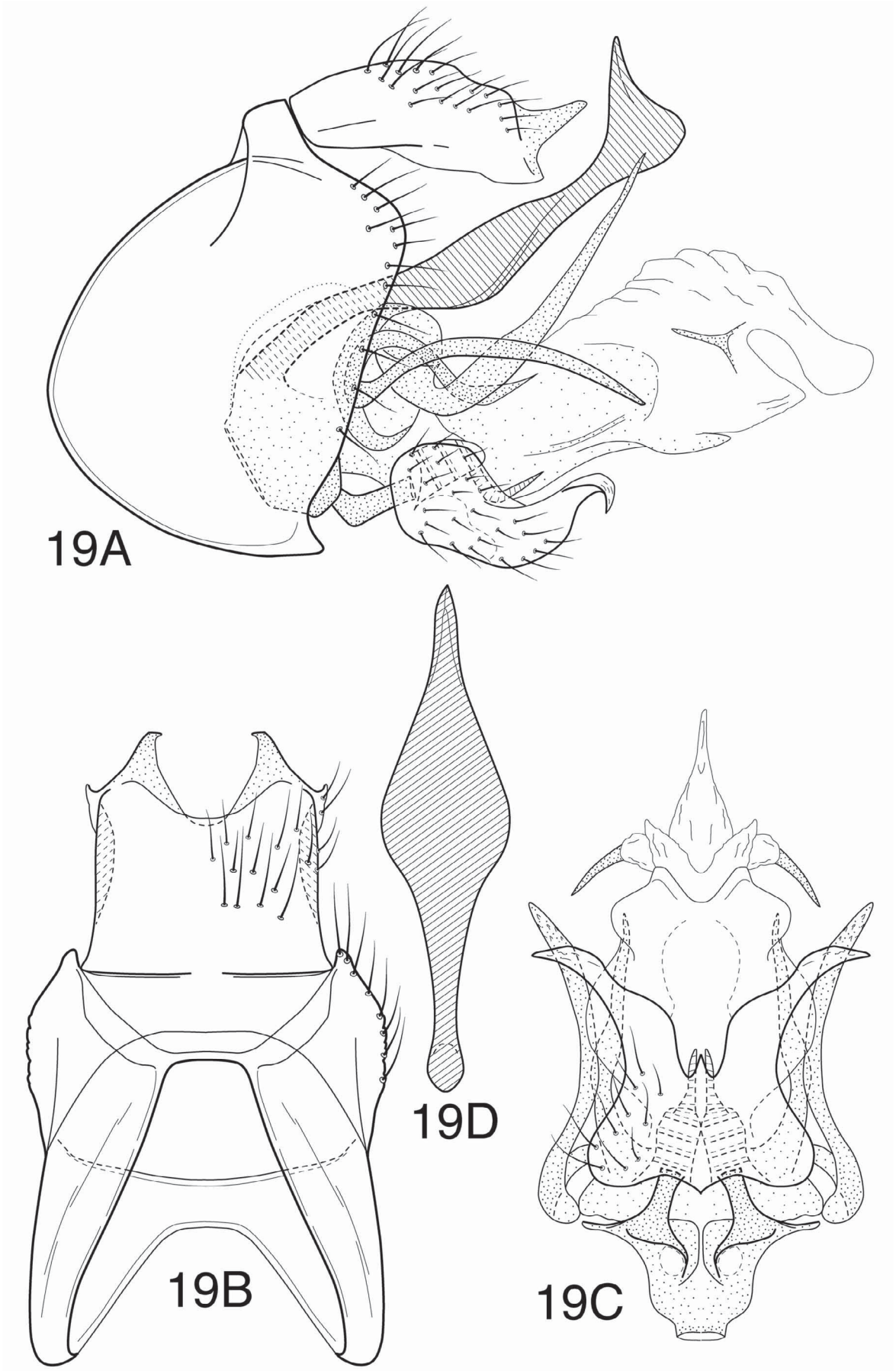


FIGURE 19. *Mortoniella pocita* (Flint), new species, male genitalia: A—lateral; B—segment IX and tergum X, dorsal; C—phallic ensemble, ventral; D—dorsal phallic spine, dorsal.

Male genitalia. Ventral process of segment VI laterally compressed, somewhat posteriorly directed, subtriangular, wide basally, acute apically. Segment IX nearly evenly rounded anterolaterally, length greatest midlaterally, posterolateral margin forming rounded to slightly angular projection in dorsal 1/2, narrowing ventrally; segment deeply excised dorsomesally and ventromesally, forming lateral lobes, lobes separated dorsomesally by much less than 1/2 width of segment. Tergum X with U-shaped mesal excision, extending less than 1/2 length of segment, and projecting lateral lobes; lateral lobes, as viewed dorsally, with apical projections subtriangular, narrowed and acute, extreme apices incurved, as viewed laterally, projecting and subacute; lobes somewhat depressed. Inferior appendages with very short, acute ventromesal projection; laterally, on each side, with basally rounded, posteriorly directed lobes; lobes moderately elongate, tapering, outwardly curved, apices acute. Mesal pockets of fused inferior appendages with apical processes relatively short, posteriorly curved. Paramere appendages bulbous basally, strongly dorsally curved near base, stout at inflection, tapering to acute apex. Dorsal phallic spine, as viewed laterally, somewhat inflated in middle, strongly dorsally curved at about apical 1/4th, with projecting, rounded lobe at inflection, apex acute; in dorsal view, very distinctly widened in middle, apical part narrowed, acute (apex laterally compressed). Phallicata with elongate narrow dorsolateral processes, basal part of each process anteriorly directed and curved around base of paramere appendage, apical part posteriorly directed, apex acute; phallicata laterally with lightly sclerotized, broadly rounded, strongly depressed projections. Endophallic membrane with apex forming projecting, rounded, laterally compressed lobe; ventromesal spine absent; phallotremal spines short, acute, anterolaterally directed

Material examined. **ARGENTINA: Salta:** Río Pescado, W Oran, 14.x.1973, OS Flint — 2 males, 118 females (Paratypes, alcohol) (NMNH).

Distribution. Argentina, Bolivia.

M. pumila subgroup

Although probably closely related to the *M. albolineata* subgroup, we are considering this a distinct subgroup because of its unusual combination of morphological characteristics. Both of the species included in this group are very small in size (for members of the *M. leroda* group of *Mortoniella)* and are characterized by a spur formula of 0:3:4. The dorsal lobe of the inferior appendages is upright, but shorter than in the species placed in the *M. albolineata* subgroup. Distinctive characters include the very much inflated dorsal phallic spine and the structure of the dorsolateral processes of the phallicata, which are unusually structured in that they are anteriorly oriented and fused mesally, forming a pivot that articulates with the inflated dorsal phallic spine. Additionally, the structure of tergum X is different from species in the *M. albolineata* subgroup in that the lateral processes are broadly rounded apically and the mesal invagination very weak and bordered ventrally by sclerotized processes.

Mortoniella pumila, new species

Fig. 20

This is a distinctive species, similar only to *M. pusilla*, n. sp. Both species have a distinctively shaped phallic spine, very broad in the middle as viewed laterally, and sharply upturned apically. *Mortoniella pumila* is most readily distinguished from *M. pusilla* by its longer paramere appendages. These are distinctly longer than the dorsal phallic spine in *M. pumila*, bowed upward, and distinctly shorter than the dorsal phallic spine in *M. pusilla*. Other differences include a shorter apicolateral, seta-bearing process on tergum X, a less pronounced mesal notch of tergum X, a dorsal process of the phallotheca that is more upright, and a longer and distinctly acute spine on the endophallic membrane. The dorsal phallic spine in *M. pumila* is also more distinctly upturned and its apical part narrower and more acuminate than *M. pusilla* (dorsal view). The latter character may be somewhat variable, but was especially evident in the site where the 2 species were found sympatrically.

Adult. Length of forewing: male 2.0–2.8 mm, female 2.3–2.9 mm. Forewing with forks I, II, and III present, hind wing with fork II only. Spur formula 0:3:4. Overall color light brown. Legs light brown, apices of tarsi whitish, tibial spurs somewhat darker than legs, but not strongly contrasting in color. Antennae with apical part of basal segments whitish. Wing bar at anastamosis distinct, marked with whitish setae.

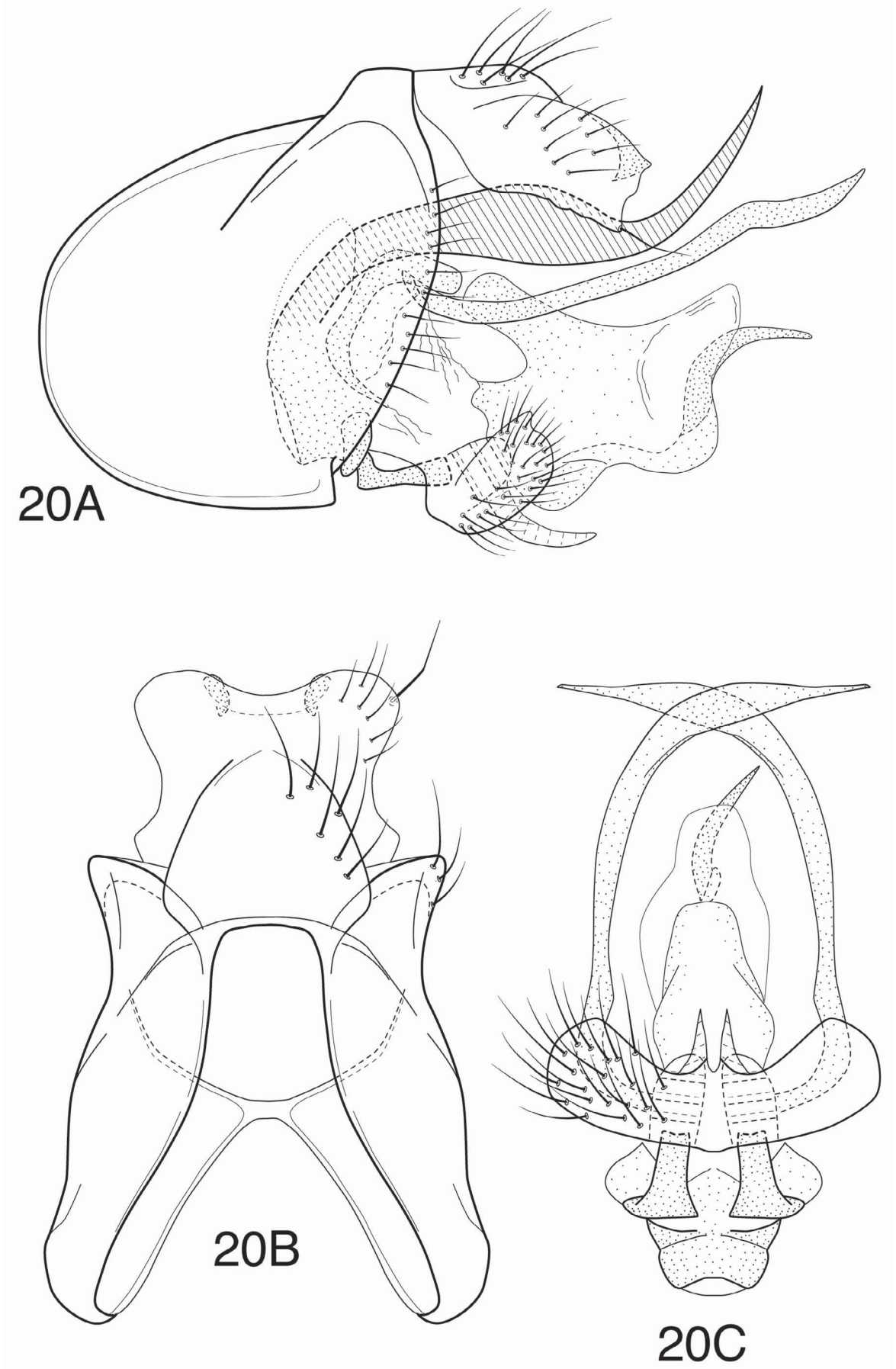


FIGURE 20. *Mortoniella pumila*, new species, male genitalia: A—lateral; B—segment IX and tergum X, dorsal; C—phallic ensemble, ventral.

Male genitalia. Ventral process of segment VI laterally compressed, ventrally projecting, subtriangular, length greater than width at base, acute to subacute apically. Segment IX nearly evenly rounded anterolaterally, length greatest midlaterally, posterolateral margin convexly rounded, narrowing ventrally; segment deeply excised dorsomesally and ventromesally, forming lateral lobes, lobes separated dorsomesally by much less than 1/2 width of segment. Tergum X with mesal margin very shallowly, concavely incised, lateral lobes only weakly developed, apices broadly rounded in dorsal view, each with single, prominent ventrolateral seta. Inferior appendages without apicomesal projection; laterally, on each side, with short, setose, dorsally-directed lobes, apices of lobes subacute. Mesal pockets of fused inferior appendages with apical processes prominent, posteriorly curved, distinctly projecting beyond inferior appendages. Paramere appendages elongate (as long or longer than dorsal phallic spine), narrow, mesally curved, slightly widened preapically, apices acute; in dorsal view strongly mesally curved preapically. Dorsal phallic spine, as viewed laterally, distinctly upturned in apical 1/2, apex narrowed and acute, spine very distinctly, bulbously enlarged in middle. Phallicata short, tubular, with prominent, sclerotized, raised, anteriorly-directed, dorsomesal process subtending dorsal phallic spine; ventral margin weakly sclerotized, somewhat protruding. Endophallic membrane apparently short and simple in structure, with short, stout, curved ventromesal spine; phallotremal spines absent.

Holotype male: BRAZIL: Rio de Janeiro: Encontro dos Rios (Macaé/Bonito), 6 km S Lumiar, 22°23'29"S, 042°18'42"W, 600 m, 10.iii.2002, Holzenthal, Blahnik, Paprocki & Prather (UMSP000088069) (pinned) (MZUSP).

Paratypes: BRAZIL: Minas Gerais: Parque Estadual de São Gonçalo do Rio Preto, Córrego das Eguas, 18°08'43"S, 043°22'09"W, 891 m, 14.x.2000, Paprocki, Amarante & Isaac — 1 male (alcohol) (UMSP); Rio Santo Antônio, downstream from Morro do Pilar, 19°08'08"S, 043°21'15"W, 530 m, 17.x.2000, Paprocki & Ferreira — 18 males, 74 females (alcohol) (UMSP); Corrego Pitanga in Braúnas, 19°03'25"S, 042°43'05"W, 353 m, 18.x.2000, Paprocki & Ferreira — 1 male, 3 females (UMSP); Corrego Pitanga, upstream of confl. with Rio Santo Antônio, 19°05'40"S, 042°39'54"W, 238 m, 19.x.2000, Paprocki & Ferreira — 15 males (alcohol) (UMSP); **Rio de Janeiro:** same locality and date as holotype — 1 male, 5 females (pinned) 23 males, 54 females (alcohol) (MZUSP, UMSP, NMNH).

Etymology. This species is named *M. pumila* from the Latin word *pumilis*, meaning diminutive or little, and referring to the diminutive size of this species.

Mortoniella pusilla, new species

Fig. 21

This is a distinctive and diminutive species, similar only to *M. pumila*. Character similarities are discussed in the diagnosis for *M. pumila*. *Mortoniella pusilla* is most readily distinguished from *M. pusilla* by its shorter paramere appendages. These are distinctly shorter than the dorsal phallic spine in *M. pusilla*. Other differences include a much longer apicolateral, seta-bearing process on tergum X, a more pronounced mesal notch of tergum X, dorsal processes of the phallotheca that are more flattened and anvil-like, and an apically rounded or short angular, as opposed to more prominent and apically acute spine on the endophallic membrane. The dorsal phallic spine in *M. pusilla* is also less distinctly upturned and its apical part wider, as viewed dorsally.

Adult. Length of forewing: male 2.4–2.8 mm, female 2.5–3.0 mm. Forewing with forks I, II, and III present, hind wing with fork II only. Spur formula 0:3:4. Overall color light brown. Legs light brown, apices of tarsi whitish, tibial spurs somewhat darker than legs, but not strongly contrasting in color. Antennae with apical part of basal segments whitish. Wing bar at anastamosis distinct, marked with whitish setae.

Male genitalia. Ventral process of segment VI laterally compressed, ventrally projecting, subtriangular, length greater than width at base, acute to subacute apically. Segment IX nearly evenly rounded anterolaterally, length greatest midlaterally, posterolateral margin convexly rounded, narrowing ventrally; segment deeply excised dorsomesally and ventromesally, forming lateral lobes, lobes separated dorsomesally by much less than 1/2 width of segment. Tergum X with mesal margin shallowly, concavely incised, lateral lobes only weakly developed, apices truncately rounded in dorsal view, each with single, prominent ventrolateral seta on posteriorly curved, finger-like protrusion. Inferior appendages without apicomesal projection; laterally, on each side, with short, setose, dorsally-directed lobes, apices of lobes subacute. Mesal pockets of fused inferior appendages with apical processes promi-

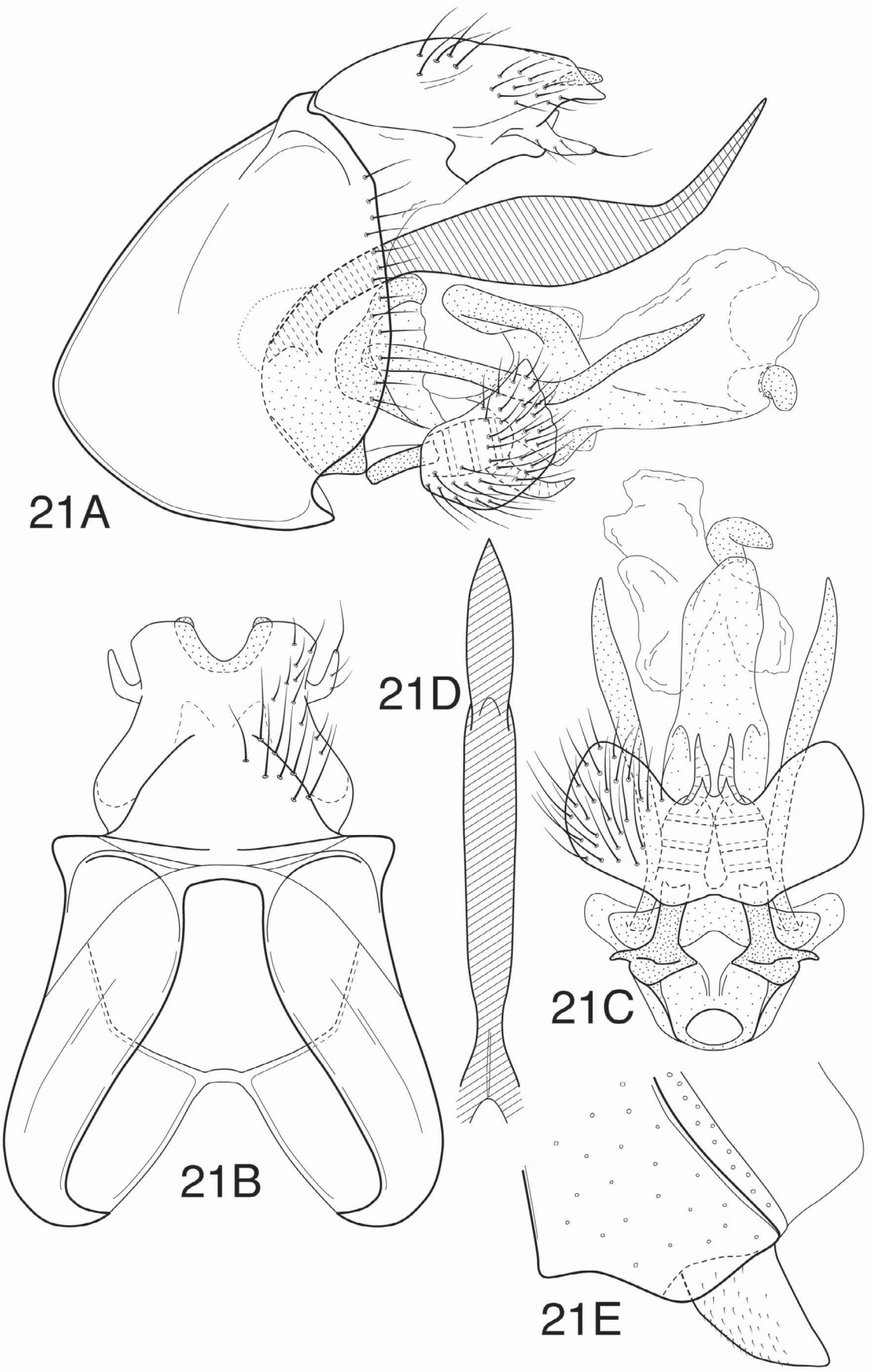


FIGURE 21. *Mortoniella pusilla*, new species, male genitalia: A—lateral; B—segment IX and tergum X, dorsal; C—phallic ensemble, ventral; D—dorsal phallic spine, dorsal; E—ventral process of segment VI, lateral.

nent, posteriorly curved, projecting beyond inferior appendages. Paramere appendages relatively short (shorter than dorsal phallic spine), narrow, posteriorly-directed. Dorsal phallic spine, as viewed laterally, distinctly upturned in apical 1/2, apex narrowed and acute, spine very distinctly, bulbously enlarged in middle. Phallicata short, tubular, with prominent, sclerotized, raised and flattened, anteriorly-directed dorsomesal process subtending dorsal phallic spine; ventral margin weakly sclerotized, distinctly projecting. Endophallic membrane apparently short and simple in structure, with very short, curved, bluntly rounded or subacute ventromesal sclerite; phallotremal spines absent.

Holotype male: BRAZIL: Minas Gerais: Corrego Pitanga, upstream of confl. with Rio Santo Antônio, 19°05'40"S, 042°39'54"W, 238 m, 19.x.2000, Paprocki & Ferreira — (UMSP000208515) (pinned, wings mounted, body in glycerin) (MZUSP).

Paratypes: BRAZIL: Minas Gerais: same locality and date as holotype — 22 males (alcohol) (UMSP); Parque Estadual de São Gonçalo do Rio Preto, Rio Preto, 18°07'50"S, 043°20'15"W, 791 m, 12.x.2000, Paprocki, Amarante & Salgado — 36 males, 576 females (alcohol) (UMSP, NMNH, MZUSP); Rio Mainarte, bridge on Cibrão road, 20°27'15"S, 043°24'06"W, 700 m, 18.viii.1998. Paprocki & Amarante — 1 male, 1 female (pinned) (UMSP).

Etymology. This species is named *M. pusilla* from a Latin word for very small or little, referring to the diminutive size of this species.

M. punensis subgroup

This subgroup currently contains only *Mortoniella punensis* and *M. marini* (Rueda & Gibon 2008). However, 2 additional undescribed species from Bolivia and Colombia also belong here. The most distinctive aspect of this subgroup is the structure of the paramere appendages and dorsolateral processes of the phallicata. The dorsolateral processes of the phallicata are modified into curved, spine-like processes that hook over the paramere appendages, curving them so that they overlap and cross mesally. The lateral processes bordering this assemblage originate from the ventral margin of the phallicata and seem to be another derived character feature indicating a relationship between these species.

Mortoniella punensis (Flint, 1983)

Fig. 22

Mexitrichia punensis Flint, 1983: 9; Rueda & Gibon 2008: 223 [illustration; distribution].
Mortoniella punensis (Flint); Blahnik & Holzenthal 2008: 69 [*M. leroda* species group].

Mortoniella punensis is most closely related to *M. marini*. As mentioned in the discussion of the *M. punensis* subgroup, both species have curved, spine-like dorsolateral processes on the phallicata that hook over the paramere appendages, causing them to cross mesally, and also have upturned, flattened processes from the ventral margin of the phallicata. Both species also have a second apicolateral projection on each side of tergum X, in addition to the usual acute apicolateral projection. *M. punensis* is most readily diagnosed from *M. marini* by having a tergum X that is rounded and projecting apicomesally, rather than invaginated.

Adult. Length of forewing: male 4.2 mm. Forewing with forks I, II, and III present, hind wing with fork II only. Spur formula 0:4:4. Overall color medium brown. Tibial spurs somewhat darker than legs, contrasting in color. Wing bar at anastamosis more or less distinctly marked with whitish setae, bar discontinuous.

Male genitalia. Ventral process of segment VI laterally compressed, somewhat posteriorly directed, relatively wide basally, narrowed and subacute apically, length about 2 times width at base (Fig. 22E). Segment IX nearly evenly rounded anterolaterally, length greatest midlaterally, posterolateral margin convexly rounded in dorsal 1/2, narrowing ventrally; segment deeply excised dorsomesally and ventromesally, forming lateral lobes, lobes separated dorsomesally by much less than 1/2 width of segment. Tergum X convexly rounded mesally, with short, projecting dorsolateral lobes and rounded ventrolateral lobes; dorsolateral lobes, as viewed dorsally, somewhat mesally curved, narrow basally, subacute apically. Inferior appendages short, without distinct ventromesal projection, lateral lobes rounded dorsally, not forming tapering dorsal projections. Mesal pockets of fused inferior

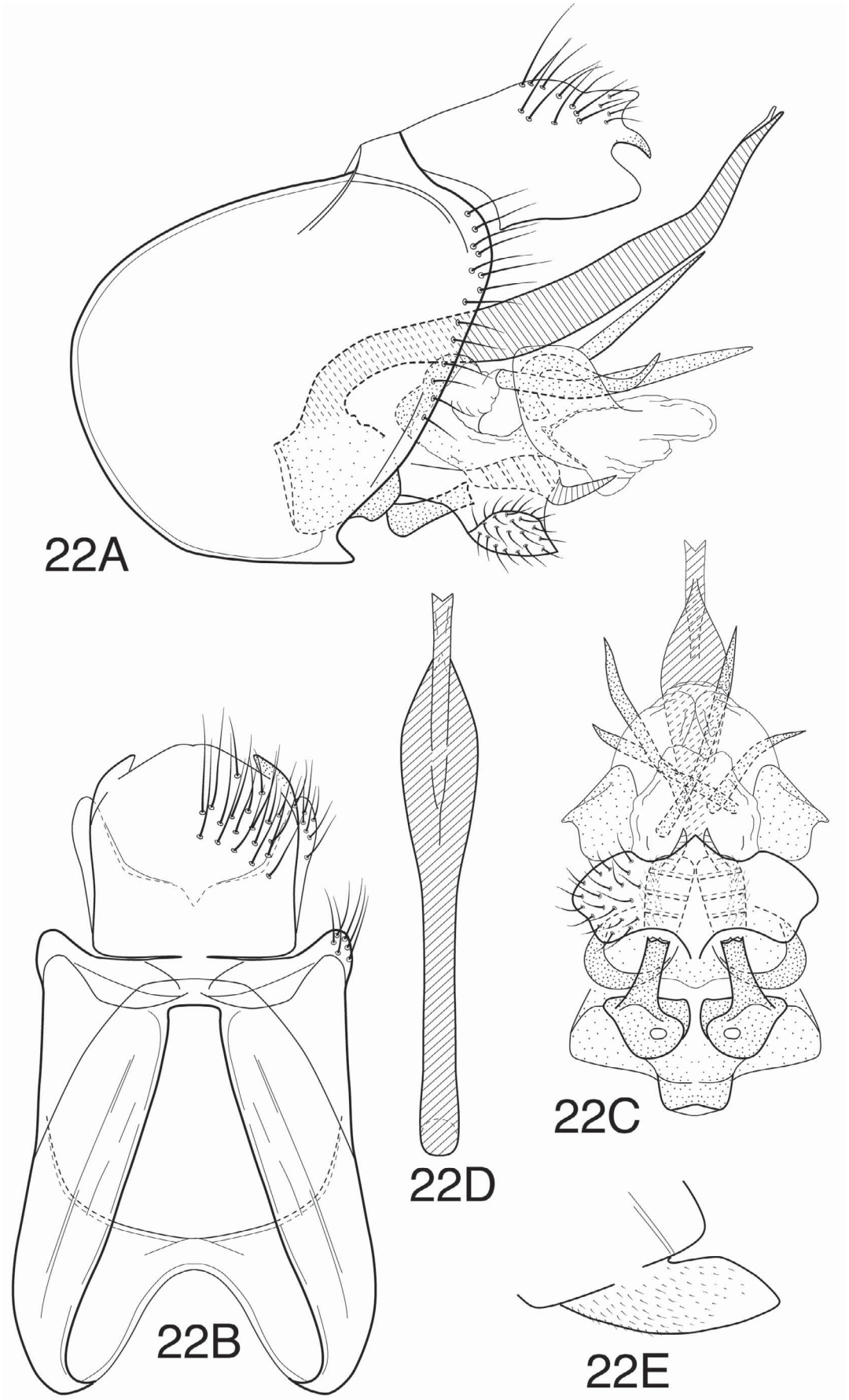


FIGURE 22. *Mortoniella punensis* (Flint), male genitalia: A—lateral; B—segment IX and tergum X, dorsal; C—phallic ensemble, ventral; D—dorsal phallic spine, dorsal; E—ventral process of segment VI, lateral.

appendages with apical processes relatively short, posteriorly curved. Paramere appendages short, narrow, uniform in width, acute apically, each mesally turned so that appendages from opposite sides cross over one another mesally. Dorsal phallic spine, as viewed laterally, somewhat widened in middle, rather gradually upturned from base, more strongly in apical 1/4th, tapering apically; in dorsal view, uniform in width in basal part, somewhat inflated before apical inflection, apex weakly bifid, apices acute. Phallicata with elongate narrow, sinuous dorsolateral processes, each curved over corresponding paramere appendage; laterally with broad, subtruncate, dorsally-directed lobes, each paralleling assemblage formed by paramere appendage and dorsolateral lobe of phallicata. Endophallic membrane apparently short and simple, without ventromesal spine; phallotremal spines absent.

Material examined. **ARGENTINA: Tucuman:** Rt. 307, La Angostura, 11.x.1973, OS Flint — 1 male (paratype, pinned) (NMNH).

Distribution. Argentina, Bolivia.

M. ormina species group

This group is characterized by species that are typically very small in size, usually dark brown to nearly black with white wing markings (including a wing bar at the anastamosis and sometimes small white spots at the apex of the wings); tergum X with a deep ventromesal excision; lateral lobes that are simple in structure, either rounded or acute apically (or with an apicolateral excision); a dorsal phallic spine that has the lateral margins at least somewhat explanate and the apex very sharply upturned (in the majority of species); a tergum IX that is typically widest in its ventral 1/2, rather than midlaterally; and a ventral process from segment IV that is elongate, narrow, and posteriorly directed. Articulated appendages at the base of the phallotheca are typically short and the accompanying mesal pockets of the fused inferior appendages have either short hooked or elongate sinuous projections. Hind wing venation is reduced, with only fork II present (fig. 19B, Blahnik & Holzenthal 2008). A distinctive and diagnostic character of the female genitalia is that segment VIII has the posterior margin invaginated, with a mesal tab-like projection, bearing exactly 2 setae in species examined (fig. 18A, Blahnik & Holzenthal 2008).

Mortoniella alicula, new species

Fig. 23

From other members of the *M. ormina* species group, this species is notably distinguished by the structure of its dorsal phallic spine, which has pronounced T-shaped apicolateral expansions and an apex that is upturned and posteriorly recurved. The long narrow paramere appendages are also distinctive as compared to other species described from this region. Among described species, *M. alicula* is undoubtedly most closely related to *M. ormina* (Mosely, 1939), which also has the apex of the dorsal phallic spine similarly narrowed and posteriorly bent. Diagnostic differences include the much longer paramere appendages of *M. alicula*, as well as the more greatly widened dorsal phallic spine and the different armature of the phallicata.

Adult. Length of forewing: male 2.1 mm. Forewing with forks I, II, and III present, hind wing with fork II only. Spur formula 0:3:4 (preapical spur of mesotibia very small). Overall color medium brown. Legs yellowish, tibial spurs darker in color, contrasting with legs. Wing bar at anastamosis marked with white, contrasting setae, apices of forewings with small white setal spots at apices of veins.

Male genitalia. Ventral process of segment VI posteriorly projecting, elongate, narrow, length more than 2 times width at base; apex dorsoventrally compressed, acute as viewed laterally (Fig. 23E), rounded as viewed ventrally. Segment IX rounded anterolaterally, length greatest in ventral 1/2, posterolateral margin nearly linear; segment deeply excised dorsomesally and ventromesally, forming lateral lobes, lobes separated dorsomesally by more than 1/2 width of segment. Tergum X elongate, simple in structure, with very deep, narrow U-shaped mesal excision; apical lobes broadly rounded. Inferior appendages short, inconspicuous, without dorsal or ventromesal projections, more or less fused ventromesally. Mesal pockets of inferior appendages with prominent, posteriorly-directed, spine-like projections, apparently fused to ventral margin of inferior appendages. Paramere appendages very narrow, elongate, slightly widened preapically, apices acute; appendages with broad U-shaped curvature, curved downward at base and upward at apex. Dorsal phallic spine of very distinctive structure, laterally with

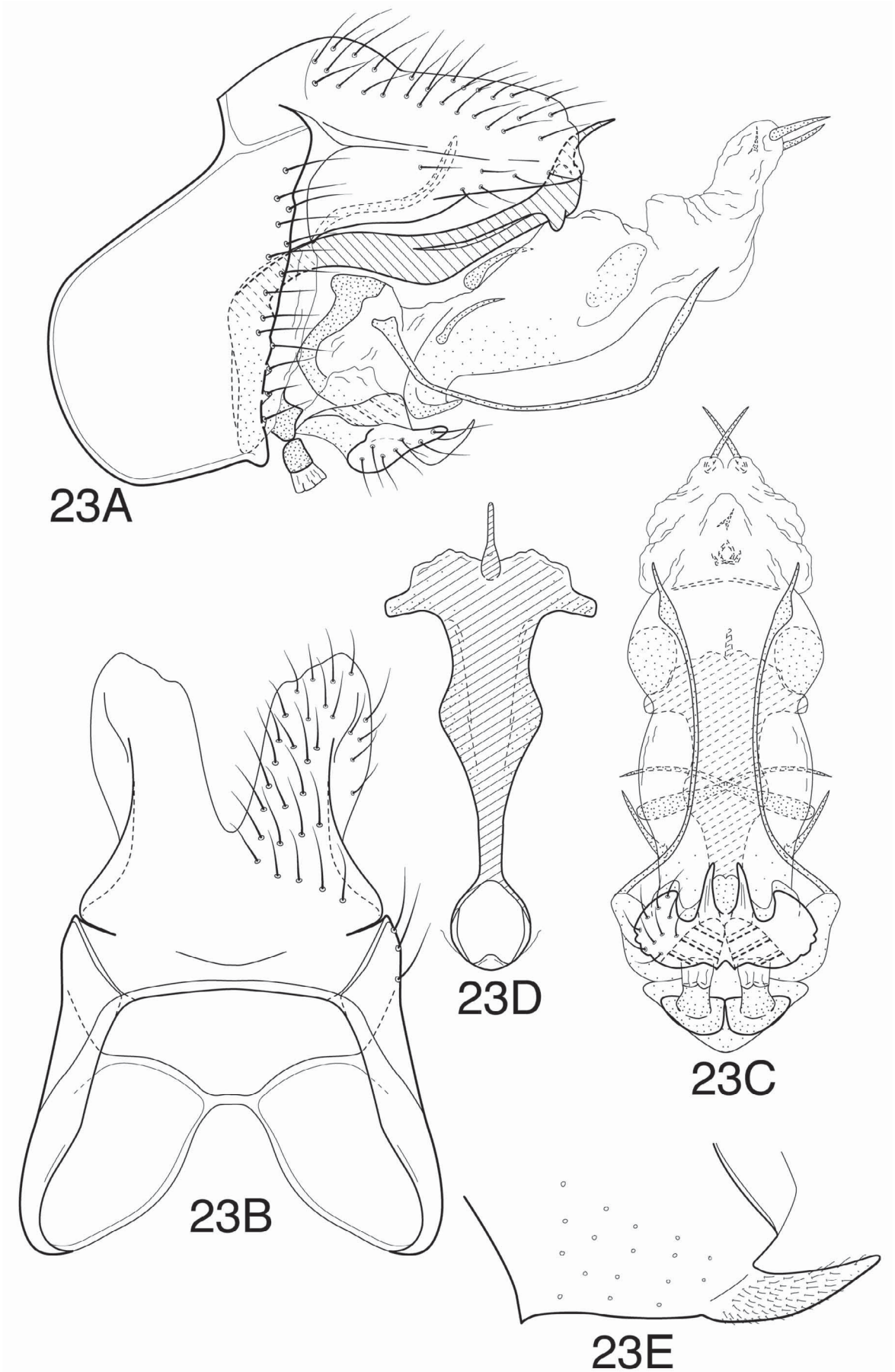


FIGURE 23. *Mortoniella alicula*, new species, male genitalia: A—lateral; B—segment IX and tergum X, dorsal; C—phallic ensemble, ventral; D—dorsal phallic spine, dorsal; E—ventral process of segment VI, lateral.

rounded, depressed projections; apically, as viewed dorsally, greatly widened, with T-shaped lateral projections and narrow, acute, strongly posteriorly curved dorsomesal projection. Phallicata with 2 pairs of relatively short spine-like processes, dorsally with mesally-directed, attenuate processes, crossing each other mesally, laterally with shorter, laterally-directed processes. Base of endophallic membrane (or apex of phallicata) with rounded, membranous (or lightly sclerotized) lateral projections, apex of endophallic membrane with paired, rounded, membranous projections, each with needle-like, sclerotized phallotremal spine, mesally with additional short spine (possibly modified apex of phallotremal sclerite). Phallotremal sclerite evident as small rounded sclerite.

Holotype male: BRAZIL: Rio de Janeiro: Rio Macaé, Macaé de Cima, 22°23'41"S, 042°30'08"W, 1000 m, 8.iii.2002, Holzenthal, Blahnik, Paprocki & Prather (UMSP000087906) (pinned) (MZUSP).

Etymology. This species is named *M. alicula*, from a Latin word for wing and referring to the wing-like lateral expansions of the apical part of the dorsal phallic spine of this species.

***Mortoniella catarinensis* (Flint, 1974)**
Fig. 24

Mexitrichia catarinensis Flint, 1974: 12.
Mortoniella catarinensis (Flint); Blahnik & Holzenthal 2008: 70 [*M. ormina* species group].

This species can be diagnosed be the wide lateral expansions of its dorsal phallic spine and by its paramere appendages, which apparently consist of 3 pairs of spine-like structures.

Adult. Length of forewing: male 2.0 mm. Venation difficult to discern; forewing (probably) with forks I, II, and III present, hind wing with fork II only. Spur formula 0:3:4. Specimen in alcohol and totally cleared, color not evident.

Male genitalia: Ventral process of segment VI posteriorly projecting, elongate, narrow, length more than 2 times width at base; apex dorsoventrally compressed, acute as viewed laterally (Fig. 24E), rounded as viewed ventrally. Segment IX rounded anterolaterally, length greatest in ventral 1/2, posterolateral margin nearly linear; segment deeply excised dorsomesally and ventromesally, forming lateral lobes, lobes separated dorsomesally by about 1/2 width of segment. Tergum X elongate, simple in structure, with V-shaped mesal excision extending about 1/2 length of segment; apical lobes acute. Inferior appendages inconspicuous, subtriangular as viewed laterally, each with acute apicoventral projection and short dorsal lobe; posteromesal margin convex. Mesal pockets of fused inferior appendages with apical processes elongate, narrow, sinuous, posteriorly directed, extending beyond inferior appendages. Paramere appendages (apparently) composed of 3 pairs of elongate, acute processes (lateral 2 possibly from base of phallicata). Dorsal phallic spine of distinctive structure, laterally with wing-like, depressed, lateral projections, basal margin of each wing rounded, apical margins acute; apical 1/3rd of dorsal phallic spine sharply upturned, apex acute. Phallicata lightly sclerotized, without obvious spines. Endophallic membrane bulbous, with lightly sclerotized, paired apicodorsal projections (probably phallotremal spines).

Material examined. **BRAZIL: Santa Catarina:** i.1963, F Plaumann —1 male (holotype, in alcohol, USNM type 72739) (NMNH).

Distribution. Brazil

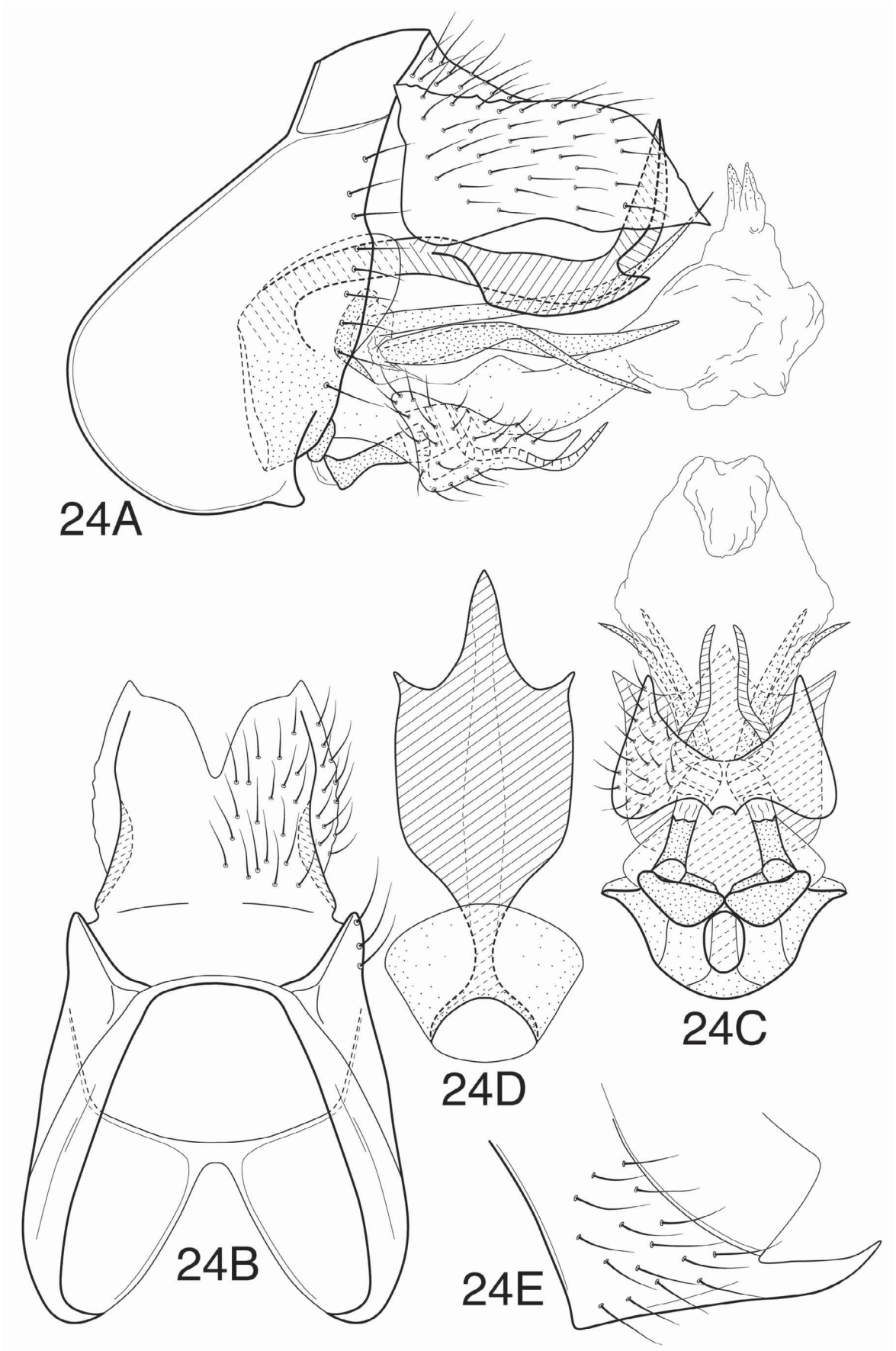


FIGURE 24. *Mortoniella catarinensis* (Flint), male genitalia: A—lateral; B—segment IX and tergum X, dorsal; C—phallic ensemble, ventral; D—dorsal phallic spine, dorsal; E—ventral process of segment VI, lateral.

***Mortoniella collegarum* (Rueda & Gibon, 2008), new combination**
Fig. 25

Mexitrichia collegarum Rueda & Gibon, 2008: 216

The illustrated specimen is from Chile. Although differing from the illustration of the type in several points, the essential features correspond and the differences seem to represent variable features. Diagnostic features are found in the strongly upturned dorsal phallic spine with a deep apicomesal incision and the apically incised lateral margins of tergum X. Although the apex of the dorsal phallic spine characteristically has the margin and mesal surface with small spines, these may be absent on the margin or completely absent. This is variable within the same population in the specimens recorded from Argentina. They are present in the specimens from Chile. A characteristic feature of this species is the outward curved spines at the base of the phallicata, which emerge from an enlarged, sclerotized collar. In the specimens examined, these spines are not as thick as those illustrated for the holotype. However, the development of the basal collar and the length of the spines also seem to be variable; the spines were even absent or vestigial in 1 of the specimens examined from Chile. What we have interpreted as paramere appendages are very lightly sclerotized, short, spine-like processes, which appear to be vestigial. These vary in length in the material examined; they are easily overlooked and it is possible that they may be absent in some specimens; they were not illustrated in the holotype specimen. The last notable difference of the specimens examined from the holotype are in the apical lobes of the endophallic membrane; there are 2 such lobes in the material examined, with sclerotized apical spines (probably phallotremal spines), and 4 prominent lobes with apical spines in the holotype. We have observed lobes similar to those of the holotype in some specimens from Bolivia (which, however, completely lack small apical spines on the dorsal phallic spine). In as much as this is a relatively minor feature, and only easily observed in specimens in which the endophallic membrane is expanded, we are considering this to be variation. All of the specimens we examined (for which the features could be ascertained) had a posteriorly directed dorsomesal spine from the posterior margin of the phallicata (or base of the endophallic membrane), which apparently articulates with the cleft apex of the dorsal phallic spine, and also lightly sclerotized (or nearly membranous) balloon-like projections from the lateral margin of the endophallic membrane. These were not featured or described for the holotype; they are also relatively minor features that may not have been present on the holotype specimen, or may not have been evident. Although we believe the variation described here can be accommodated in 1 variable species, we acknowledge that the species status of these populations may need to be reassessed when more material is available.

Adult. Length of forewing: male 2.1-2.5 mm, female 2.5-3.0. Forewing with forks I, II, and III present, hind wing with fork II only. Spur formula 0:3:4. Overall color medium brown, legs slightly paler, tibial spurs darker, but not strongly contrasting with legs. Wing bar at anastamosis marked with white, contrasting setae. Males with modified scale-like setae on forewing, scales not quite extending to apex.

Male genitalia: Ventral process of segment VI posteriorly projecting, elongate, narrow, length more than 2 times width at base; apex slightly dorsoventrally compressed, acute as viewed laterally, subacute as viewed ventrally. Segment IX rounded anterolaterally, length generally greatest in ventral 1/2, posterolateral margin nearly linear; segment deeply excised dorsomesally and ventromesally, forming lateral lobes, lobes separated dorsomesally by 1/2 or more width of segment. Tergum X moderately elongate, relatively simple in structure, with V-shaped mesal excision; apical lobes with rounded lateral excision, producing acute dorsal and ventral projections, as viewed laterally. Inferior appendages very small, inconspicuous, with acute posterior projection. Mesal pockets of fused inferior appendages with apical processes short, dorsally curved, extending beyond inferior appendages. Paramere appendages hyaline, very narrow, apices acute, variable in length and possibly sometimes absent. Dorsal phallic spine of distinctive structure, laterally with narrow, depressed projections, apically strongly upturned in apical 1/3rd; apex somewhat inflated and deeply incised mesally, producing paired lobes, each with minute spines on apical and mesal margin (minute spines absent in some specimens or populations). Phallicata with base strongly sclerotized and somewhat dorsally produced, forming basal collar; collar laterally with outwardly curved spine-like process on each side, apices of spines often somewhat swollen, with very small scale-like projections. Endophallic membrane (or apex of phallicata) with dorsomesal, posteriorly-oriented spine-like process; laterally, at midlength with lightly sclerotized or nearly membranous balloon-like projections; apicodorsally with either 2 or 4 lobes, each with small, sclerotized spine-like apex (probably phallotremal spines).

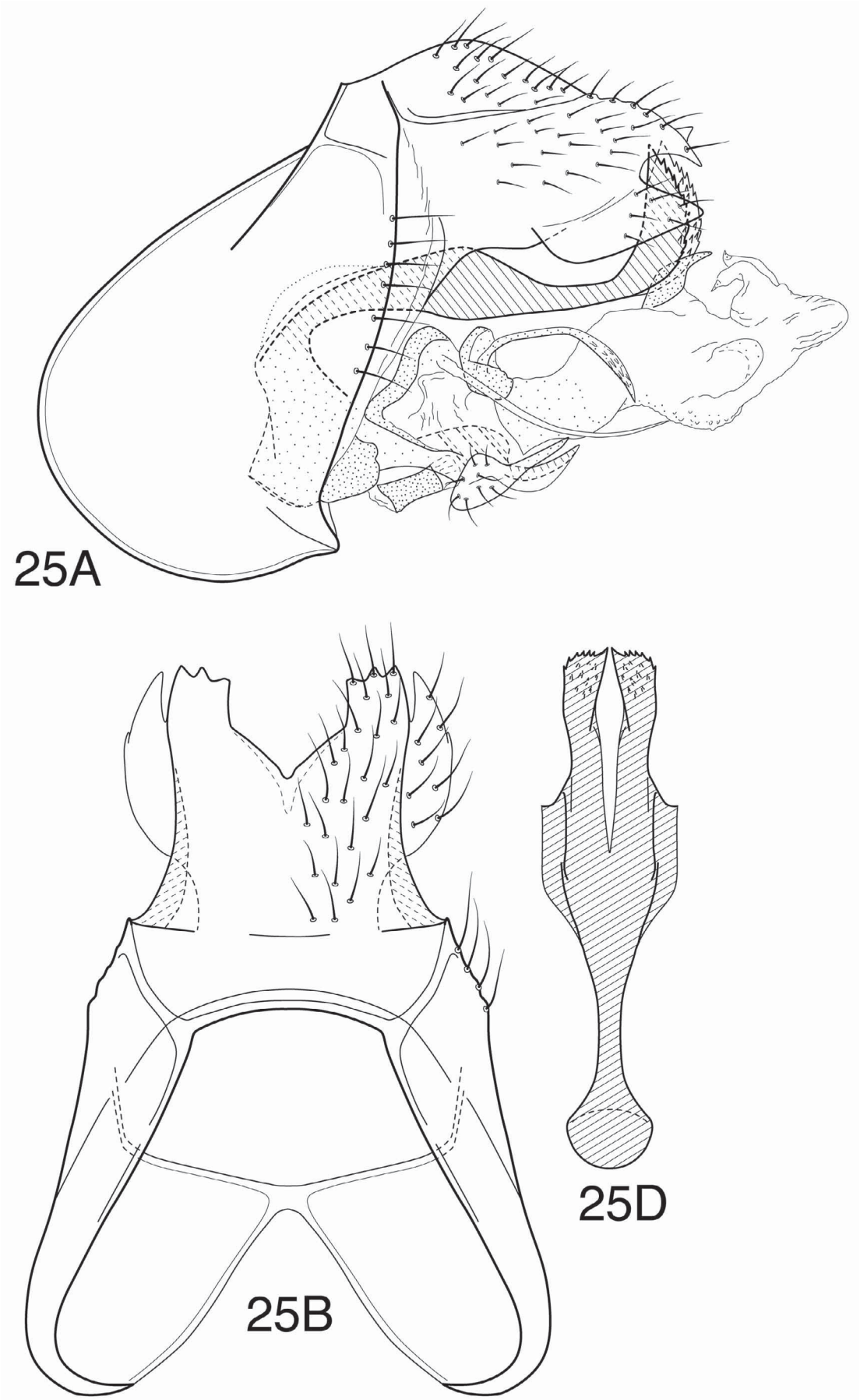


FIGURE 25. *Mortoniella collegarum* (Rueda & Gibon), male genitalia: A—lateral; B—segment IX and tergum X, dorsal; C—dorsal phallic spine, dorsal.

Material examined. **ARGENTINA: Neuquen:** Río Agrio, N. Zapala, 9-11.xii.1983, L E Peña G. — 4 males, 8 females (pinned), 6 males, 29 females (alcohol) (NMNH, UMSP); **CHILE: Curico:** El Coigo, 1.iii.1968, Flint & Peña — 2 males (alcohol) (NMNH).

Distribution. Argentina, Bolivia, Chile.

Mortoniella ormina (Mosely, 1939)

Fig. 26

Mexitrichia ormina Mosely, 1939: 222.
Mortoniella ormina (Mosely); Blahnik & Holzenthal 2008; 70 [*M. ormina* species group].

This species most closely resembles *M. alicula*, n. sp., particularly in the structure of its dorsal phallic spine, which has it apex distinctively narrowed, upturned and posteriorly curved. However, among other differences, in *M. ormina*, the phallic spine is not nearly so widely explanate preapically and the paramere appendages are much shorter.

Adult. Length of forewing: male 1.8-2.0 mm, female 2.1-2.5. Forewing with forks I, II, and III present, hind wing with fork II only. Spur formula 0:3:4. Overall color (in alcohol) pale yellowish-brown, appendages pale, without pigmentation. Wing bar at anastamosis evident in some specimens.

Male genitalia: Ventral process of segment VI posteriorly projecting, elongate, narrow, length more than 2 times width at base, apex acute (Fig. 26D). Segment IX rounded anterolaterally, length greatest in ventral 1/2, posterolateral margin weakly, convexly rounded in dorsal 1/2, narrowing ventrally; segment deeply excised dorsomesally and ventromesally, forming lateral lobes, lobes separated dorsomesally by 1/2 or more width of segment. Tergum X moderately elongate, simple in structure, with very deep, narrow, V-shaped mesal excision; apical lobes rounded, as viewed both laterally and dorsally. Inferior appendages very small, inconspicuous, with acute posterior projection. Mesal pockets of fused inferior appendages with apical processes short, posterodorsally curved, extending beyond inferior appendages. Paramere appendages moderate in length, extending about as far as dorsal phallic spine, uniformly narrow in width, acute apically. Dorsal phallic spine of distinctive structure, somewhat widened at middle, strongly dorsally curved in apical 1/4th, apex abruptly narrowed and posteriorly recurved. Phallicata bulbous, lightly sclerotized, dorsally with mesal, posteriorly-directed, spine-like process. Endophallic membrane short, simple in structure, with lightly sclerotized, rounded to subquadrate lateral processes; ventral spine and phallotremal spines absent.

Material examined. **BRAZIL: Santa Catarina:** Nova Teutonia, 27°03'S, 052°24'W, i.1964, F Plaumann — 12 males, 35 females (alcohol) (NMNH, UMSP).

Distribution. Brazil.

M. velasquezi species group

Described members of this group include only *M. velasquezi* (Flint) and *M. eduardoi* (Rueda & Gibon), both of which have hind wings densely covered with scales. However, this is not a diagnostic feature of the group, since the new species described here lack wing scales. Nevertheless, all of the species of *M. velasquezi* group are very similar in overall morphology, somewhat resembling members of the *M. ormina* species group in having the character combination of having males with an elongate ventral process on segment VI, hind wing with only fork II (Fig. 40B), and tergum X relatively simple in structure, with simple lateral lobes and a deep mesal excavation. This resemblance is probably superficial, however, since only the reduced venational character, which also occurs in some species of the *M. leroda* species group, can be considered apomorphic. Diagnostic features include the character combination of a very broad, strongly apically upturned dorsal phallic spine; elongate, apically inflated appendages on the posterior margin of the phallotheca, with accompanying, much enlarged mesal pockets on the fused inferior appendages, each of which has the apical spine-like process elongate and lance-like; inferior appendages that are much reduced and strongly fused with the phallic ensemble, with only simple and somewhat retrorsely directed, setose, lateral lobes; and a very short, sclerotized phallotheca. The females are even more distinctive than the males, with segment VII apparently subdivided into sclerotized posterior and anterior parts, the anterior part with a diagnostic row of very long, posteriorly directed setae (Fig. 30B). Tergum VIII is unmodified, without a pos-

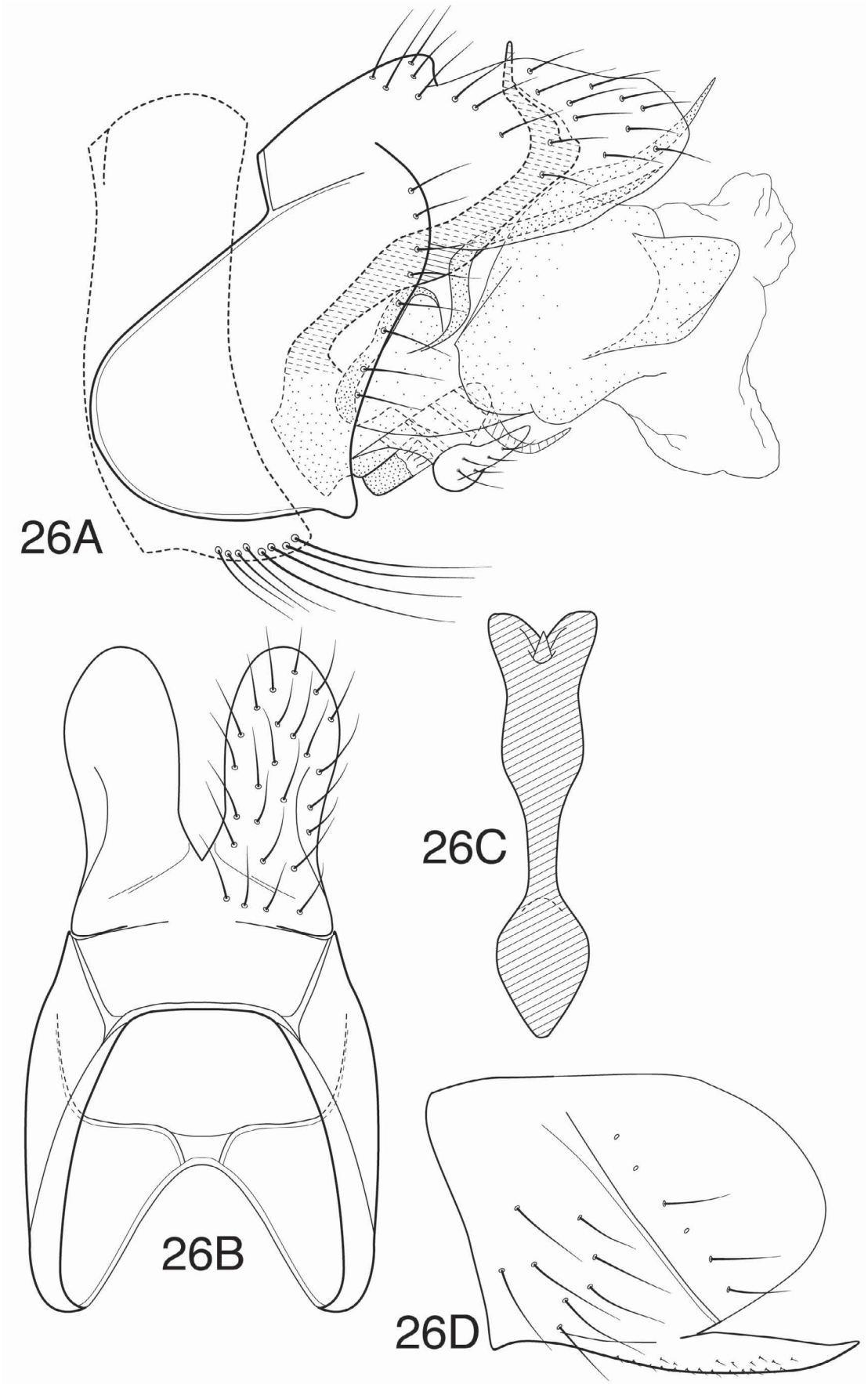


FIGURE 26. *Mortoniella ormina* (Mosely), male genitalia: A—lateral; B—segment IX and tergum X, dorsal; C—dorsal phallic spine, dorsal; D—ventral process of segment VI, lateral.

teromesal invagination. The ventral process of segment VI is similar to, but much shorter than that of the male. Tergum VII has a pair of small, nearly vestigial glandular structures (glandular structures on terga VI and/or VII is a general feature of *Mortoniella* females). Although similar in overall structure, the females of the new species described below can apparently be distinguished by the shape of tergum IX, featured in figures 30A, 31, and 32.

***Mortoniella bocaina*, new species**
Figs. 27, 32

Like the other 2 new species of the *M. velasquezi* group from Brazil described here, this species lacks scales on the hind wings. It is perhaps most likely to be confused with *M. tripuiensis*, n. sp., since both species lack the elongate and diagnostic endophallic spines found in *M. froehlichi*, n. sp. However, *M. bocaina* does have a pair of short, apically rounded, endophallic spines, not found in *M. tripuiensis*, which can help to diagnose it.

Adult. Length of forewing: male 2.9–3.3, female 3.0–3.2 mm. Forewing with forks I, II, and III present, hind wing with fork II only. Spur formula 0:3:4. Overall color dark brown. Legs brown, tibial spurs somewhat darker in color, but not strongly contrasting with legs. Wing bar at anastamosis marked with white, contrasting setae.

Male genitalia. Ventral process of segment VI posteriorly projecting, elongate, narrow, length more than 2 times width at base (Fig. 27E). Segment IX moderately rounded anterolaterally, length greatest in ventral 1/2 (or near middle), posterolateral margin nearly linear; segment deeply excised dorsomesally and ventromesally, forming lateral lobes, lobes separated dorsomesally by about 1/2 width of segment. Tergum X moderate in length, simple in structure, with deep, broad, U-shaped mesal excision; apical lobes, as viewed laterally, distinctly projecting, rounded to subacute apically. Inferior appendages almost completely fused to phallic ensemble, basally with short, setose, anteriorly-directed lobes, apically apparently fused to phallicata and endophallic membrane, forming membranous or very lightly sclerotized lobes. Mesal pockets of fused inferior appendages very bulbously enlarged, with elongate, spine-like, posteriorly-directed apicoventral projections. Paramere appendages very narrow, elongate, about as long as dorsal phallic spine. Phallotheca very short; ventral rod-like appendages elongate, with widely flared apices. Dorsal phallic spine, as viewed dorsally, broad in middle, gradually narrowed and rounded apically; as viewed laterally, relatively narrow, sharply upturned at about apical 1/3rd. Phallicata membranous, continuous with endophallic membrane. Endophallic membrane simple in structure, with membranous apical and dorsal lobes, laterally with short, sclerotized, ventrally curved lobes.

Holotype male: BRAZIL: São Paulo: Parque Nacional da Serra da Bocaina, Cachoeira dos Posses, 22°46'26"S, 044°36'15"W, 1250 m, 3.iii.2002, Holzenthal, Blahnik, Paprocki, & Prather (UMSP000069696) (pinned) (MZUSP).

Paratypes: BRAZIL: São Paulo: same locality and date as holotype — 1 male, 3 females (pinned) (UMSP).

Etymology. This species is named *M. bocaina*, as a noun in apposition, for the name of the beautiful national park where this species was collected.

***Mortoniella froehlichi*, new species**
Figs. 28, 31, 40

This is the most distinctive of the 3 new species of the *M. velasquezi* group from Brazil and unlikely to be confused because of its elongate, spine-like endophallic spines.

Adult. Length of forewing: male 2.5–2.9, female 2.6–3.3 mm. Forewing with forks I, II, and III present, hind wing with fork II only. Spur formula 0:3:4. Overall color dark brown. Legs brown, tibial spurs somewhat darker in color, but not strongly contrasting with legs, apices of tarsi whitish. Wing bar at anastamosis marked with white, contrasting setae.

Male genitalia. Ventral process of segment VI posteriorly projecting, elongate, narrow, length more than 2 times width at base (Fig. 28E). Segment IX moderately rounded anterolaterally, length greatest in ventral 1/2, posterolateral margin nearly linear; segment deeply excised dorsomesally and ventromesally, forming lateral lobes, lobes separated dorsomesally by about 1/2 width of segment. Tergum X moderate in length, simple in structure, with deep, broad, U-shaped mesal excision; apical lobes, as viewed laterally, distinctly projecting, rounded to sub-

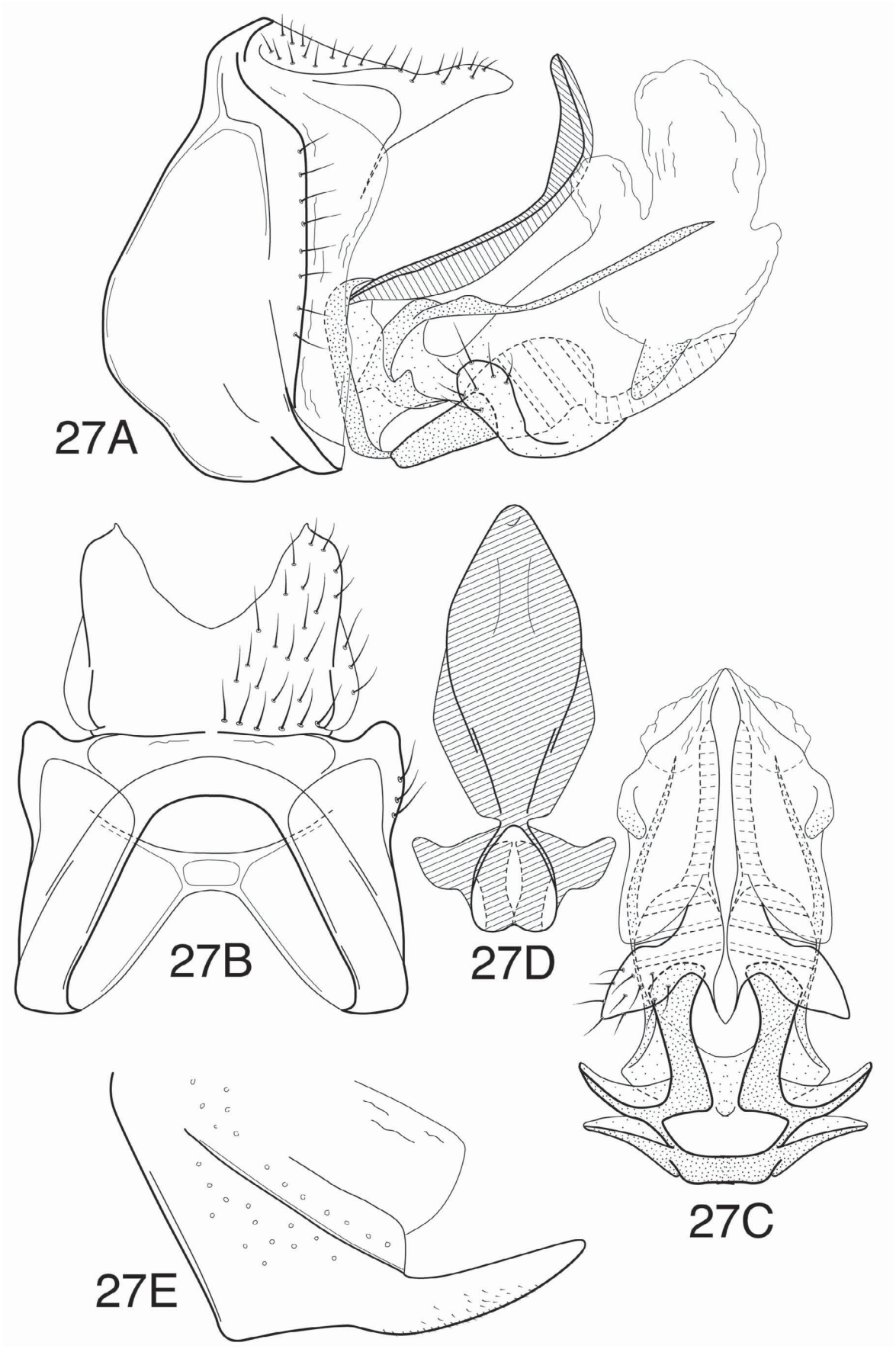


FIGURE 27. *Mortoniella bocaina*, new species, male genitalia: A—lateral; B—segment IX and tergum X, dorsal; C—phallic ensemble, ventral; D—dorsal phallic spine, dorsal; E—ventral process of segment VI, lateral.

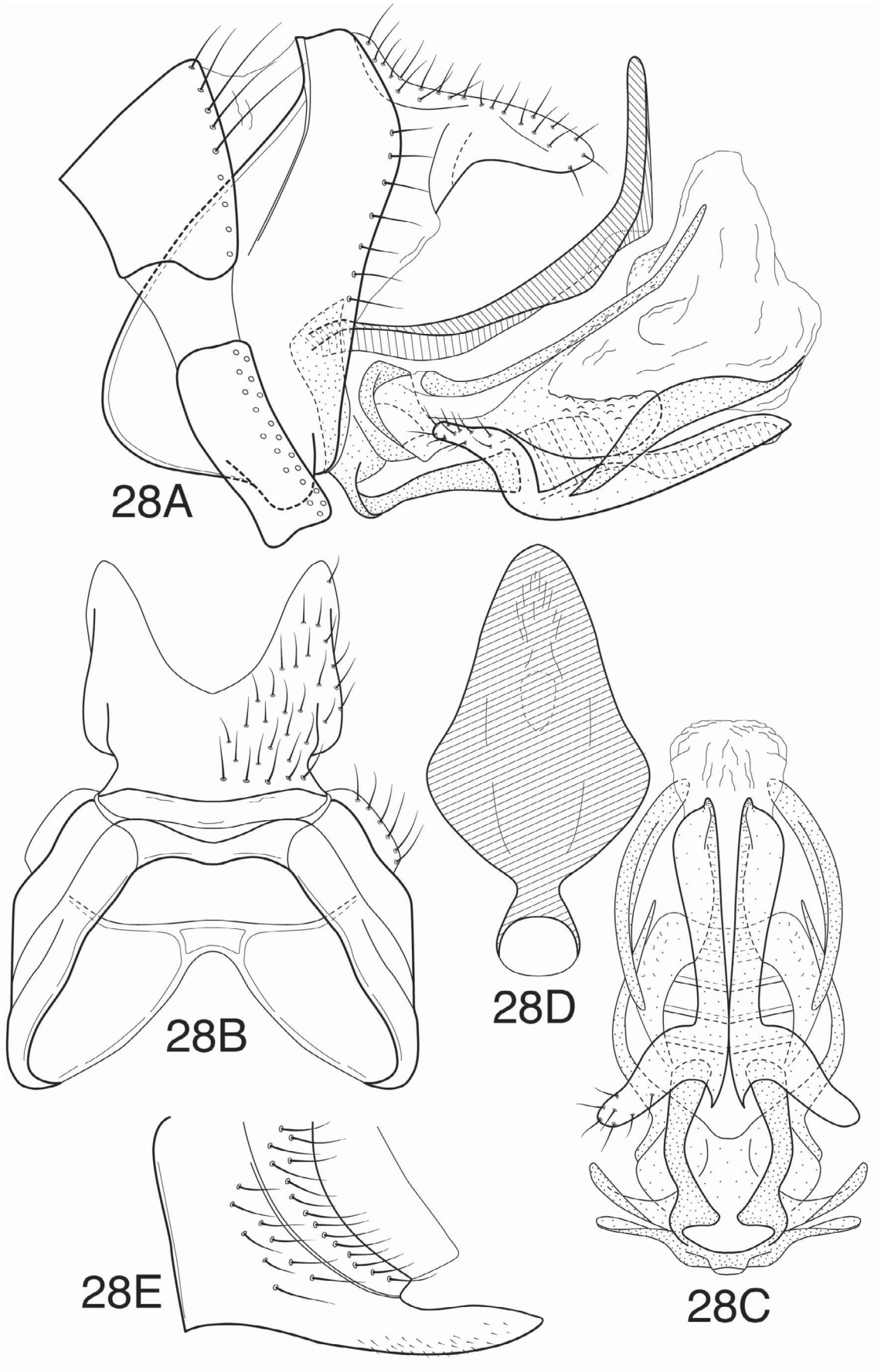


FIGURE 28. *Mortoniella froehlichi*, new species, male genitalia: A—lateral; B—segment IX and tergum X, dorsal; C—phallic ensemble, ventral; D—dorsal phallic spine, dorsal; E—ventral process of segment VI, lateral.

acute apically. Inferior appendages almost completely fused to phallic ensemble, basally with short, setose, anteriorly-directed lobes, apically with elongate narrow lobes. Mesal pockets of fused inferior appendages very bulbously enlarged, with elongate, spine-like, posteriorly-directed apicoventral projections. Paramere appendages very narrow, elongate, slightly dorsally curved, about as long as dorsal phallic spine. Phallotheca very short; ventral rod-like appendages elongate, with widely flared apices. Dorsal phallic spine, as viewed dorsally, broad in middle, gradually narrowed and rounded apically; as viewed laterally, relatively narrow, sharply upturned at about apical 1/3rd. Phallicata with lightly sclerotized, slightly scabrous, rounded lateral lobes. Endophallic membrane relatively simple in structure, dorsally with small, rounded sclerite, apparently articulating with ventral margin of dorsal phallic spine; laterally, on either side, with very prominent, sclerotized, anteriorly-directed spine-like processes.

Holotype male: BRAZIL: Rio de Janeiro: Parati, Riacho Perequê-açu, Sitio Cachoeira Grande, 23°13'14"S, 044°47'24"W, 120 m, 25.ix.2002, Blahnik, Prather, Melo, Froehlich & Silva (UMSP000086573) (pinned) (MZUSP).

Paratypes: BRAZIL: Rio de Janeiro: same locality and date as holotype — 13 males, 12 females (pinned) (MZUSP, UMSP, NMNH), 12 males, 2 females (alcohol) (UMSP); Parati, trib. to Riacho Perequê-açu, 23°12'50"S, 044°47'29"W, 190 m, 26.ix.2002, Blahnik, Prather, Melo, Froehlich & Silva — 3 males, 7 females (pinned), 9 males, 6 females (alcohol) (UMSP); Parati, Riacho Perequê-açu, 23°13'27"S, 044°46'09"W, 30 m, 24.ix.2002, Blahnik, Prather, Melo, Froehlich & Silva — 9 males, 3 females (pinned) (UMSP), 3 males, 1 female (alcohol) (MZUSP); Parque Estadual Intervales, Rio do Carmo, 24°18'59"S, 048°25'15"W, 560 m, 29.ix.2002, Blahnik, Prather, Melo & Calor — 3 males, 3 females (pinned) (UMSP).

Etymology. We take great pleasure in naming this species for Dr. Claudio Froehlich, both in recognition of his long career of working with aquatic insects in Brazil and also for his personal assistance during our collecting efforts in the country.

Mortoniella tripuiensis, new species

Figs. 29, 30

This species is perhaps most likely to be confused with *M. bocaina*, since both species lack the elongate endophallic spines found in *M. froehlichi*. Unlike *M. bocaina*, this species lacks any sclerotized endophallic spines or lobes at all, but has a lightly sclerotized, rounded lateral lobe on the phallicata, similar to that found in *M. froehlichi*. The apical part of the inferior appendages is apparently adnate to or continuous with the apical spine-like projections of the mesal pockets of the fused inferior appendages, giving the ventral profile of the phallic ensemble an open appearance.

Adult. Length of forewing: male 2.8–3.1 mm, female 3.0–3.5 mm. Forewing with forks I, II, and III present, hind wing with fork II only. Spur formula 0:3:4. Overall color dark brown. Legs brown, tibial spurs somewhat darker in color, but not strongly contrasting with legs. Wing bar at anastamosis marked with white, contrasting setae.

Male genitalia. Ventral process of segment VI posteriorly projecting, elongate, narrow, length more than 2 times width at base (Fig. 29E). Segment IX moderately rounded anterolaterally, length greatest in ventral 1/2 (or near middle), posterolateral margin nearly linear; segment deeply excised dorsomesally and ventromesally, forming lateral lobes, lobes separated dorsomesally by about 1/2 width of segment. Tergum X moderate in length, simple in structure, with deep, broad, U-shaped mesal excision; apical lobes, as viewed laterally, distinctly projecting, rounded to subacute apically. Inferior appendages almost completely fused to phallic ensemble, basally with short, setose, anteriorly-directed lobes, apically apparently fused to spine-like apical projections of mesal pockets of fused inferior appendages. Mesal pockets of fused inferior appendages very bulbously enlarged, with elongate, spine-like, posteriorly-directed apicoventral projections. Paramere appendages very narrow, elongate, about as long as dorsal phallic spine. Phallotheca very short; ventral rod-like appendages elongate, with widely flared apices. Dorsal phallic spine, as viewed dorsally, broad in middle, gradually narrowed and rounded apically; as viewed laterally, relatively narrow, upturned, more distinctly at about apical 1/3rd. Phallicata with lightly sclerotized, rounded lateral lobes. Endophallic membrane simple in structure, without sclerotized lateral processes or lobes. Phallotremal sclerite evident as small, rounded sclerite.

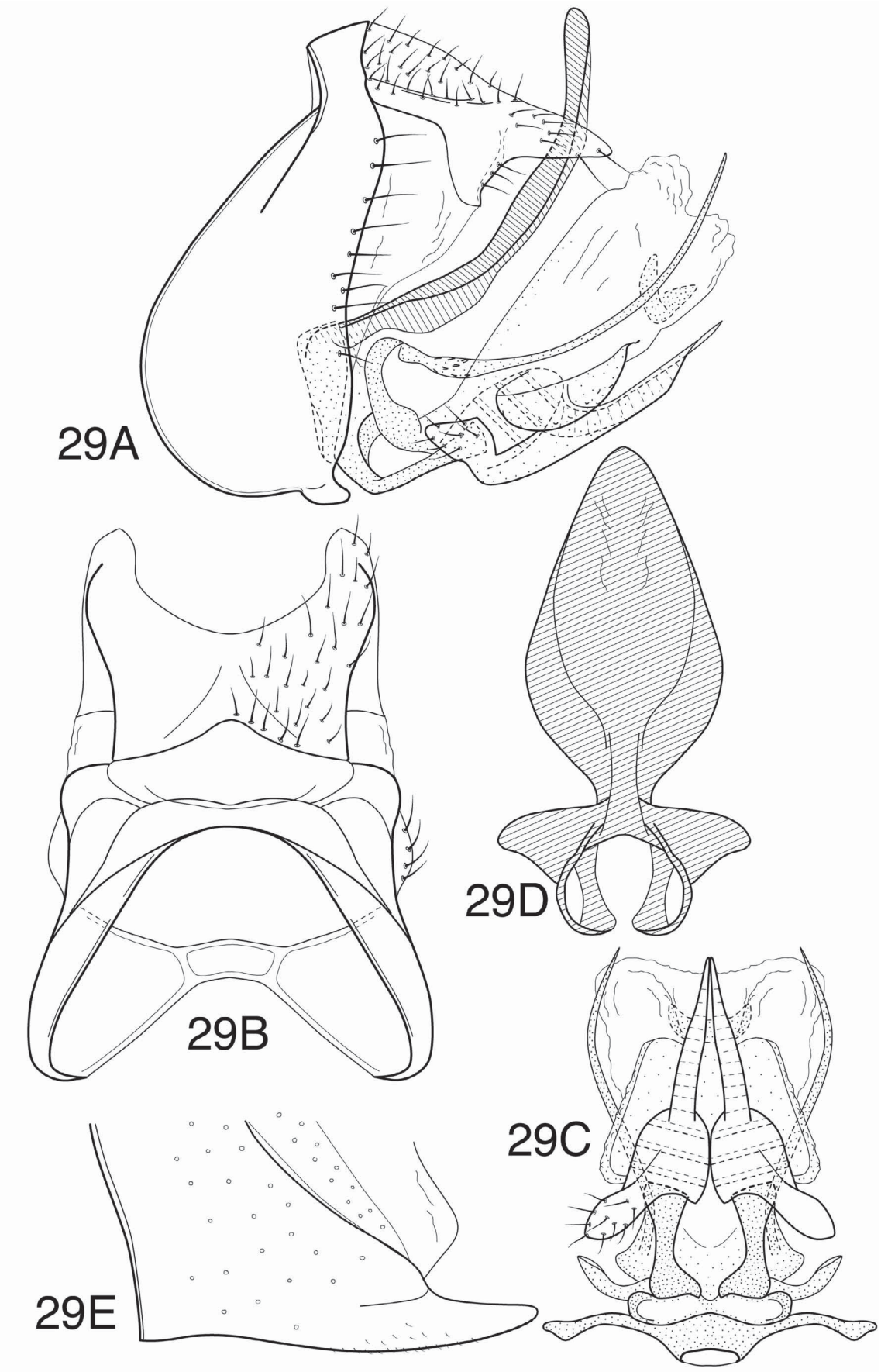
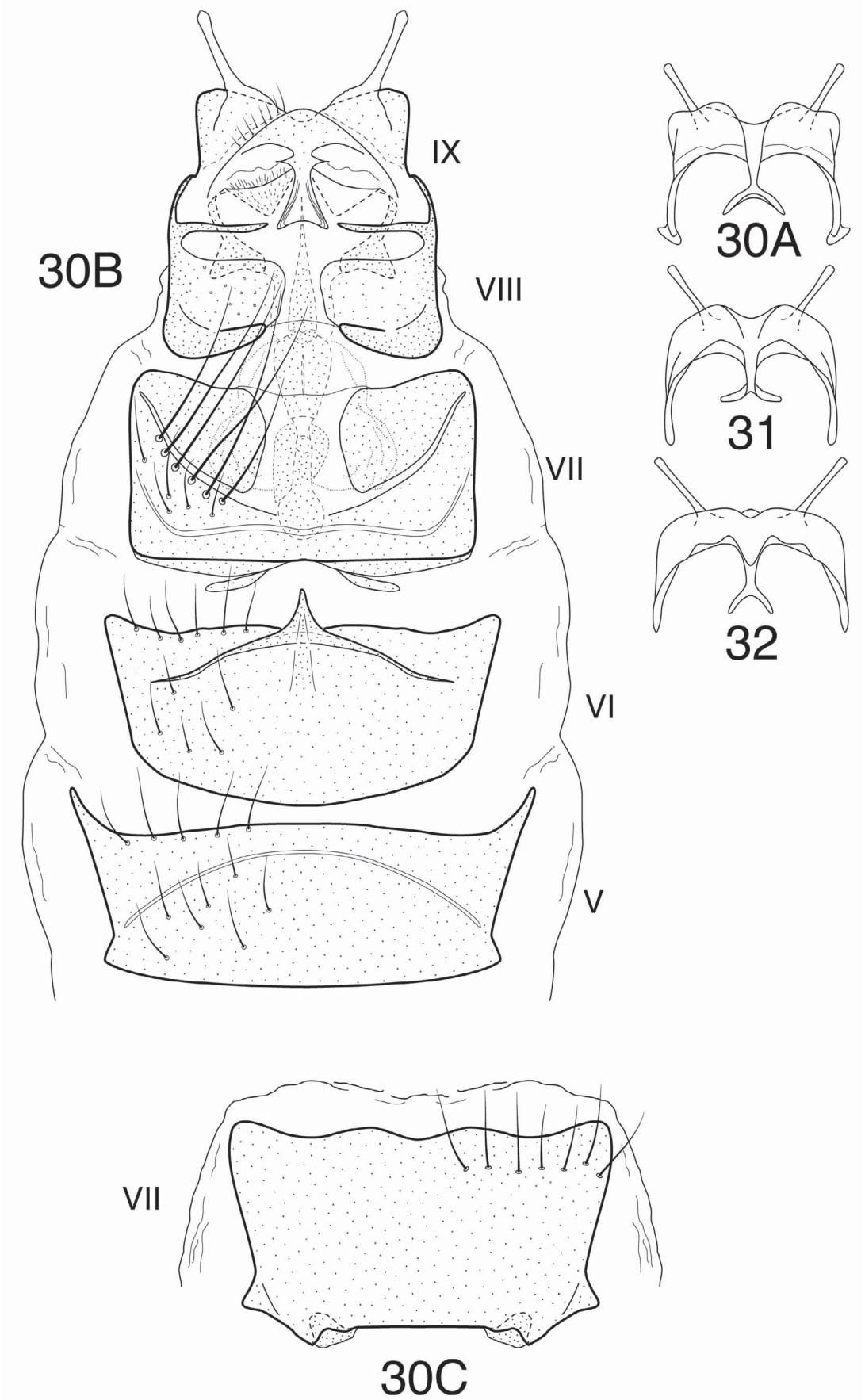


FIGURE 29. *Mortoniella tripuiensis*, new species, male genitalia: A—lateral; B—segment IX and tergum X, dorsal; C—phallic ensemble, ventral; D—dorsal phallic spine, dorsal; E—ventral process of segment VI, lateral.



FIGURES 30–32. *Mortoniella velasquezi* species group, female genitalia: **30**, *Mortoniella tripuiensis*, new species: A—tergum IX, dorsal; B—ventral; C—tergum VII, dorsal. **31**, *Mortoniella froehlichi*, new species: tergum IX, dorsal. **32**, *Mortoniella bocaina*, new species: tergum IX, dorsal.

Holotype male: BRAZIL: Minas Gerais: Estação Ecológica do Tripuí, Córrego Tripuí, 20°23'22"S, 043°32'32"W, 1070 m, 21.xi.1998, Paprocki, Braga & Amarante (UMSP000047049) (pinned) (MZUSP).

Paratypes: BRAZIL: Minas Gerais: same locality and date as holotype —1 female (pinned) (MZUSP); same locality, 16.viii.1998, Paprocki & Amarante — 2 males, 1 female (pinned) (UMSP); same locality, 20.ix.1998, Paprocki & Braga — 2 males (pinned)(UMSP, NMNH); Córrego Tripuí, 20°23'19"S, 043°32'37"W, 1100 m, 27.vii.1998, Paprocki Braga & Amarante — 1 female (pinned) (UMSP).

Etymology. This species is named *M. tripuiensis* after Estação Ecológica do Tripuí, the beautiful reserve where the holotype and paratype specimens were collected.

M. bilineata species group

The primary character used to distinguish this group, formerly representing *Mortoniella* s.s., is the presence of 3 forks in the hind wing (forks II, III and V present), as opposed to only 1 or 2 forks present in species historically placed in *Mexitrichia* (fork II or forks II and III present). As pointed out by Blahnik & Holzenthal (2008), the character defining the *M. bilineata* species group is likely a plesiomorphic character. Other characters discussed by Blahnik & Holzenthal (2008), including the presence of a narrow, posteriorly directed ventral process of sternum VI (in both males and females), segment IX of the male with the anteroventral margin produced and with the lobes widely separated dorsally, and the presence of a deeply invaginated tergum VIII in females, are not unique to the *M. bilineata* group. However, the structure of tergum VIII of females is distinctive for the group and could probably be considered diagnostic. An illustration of the female genitalia for *M. bilineata* is provided in Fig. 33, since no female of the *M. bilineata* species group has been previously illustrated. Its general characters are representative of the group (for those species that have been examined), except for the recurved anterior margin of tergum IX, which is a character attribute peculiar to *M. bilineata*. A larval character listed by Flint (1963) as diagnostic for the *M. bilineata* species group, a thickened seta at the base of the foretarsal claw, is difficult to apply in placing species, since very few larvae have been associated or described for *Mortoniella*. Flint (1963) listed several gestalt characters uniting the taxa placed in the *M. bilineata* species group, including the tendency of tergum X to be elongate, and several other genitalic characters, not all of which seem to be consistent for the entire group.

Sykora (1999) divided the known taxa into 5 "tentative" subgroups (the *M. argentinica*, *bilineata*, *enchrysa*, *flinti*, and *wygodzinskii* subgroups), and also suggested that concepts of relationships are likely to change once the taxa are better known. About 1/2 of these species were placed in his *M. bilineata* subgroup. Although the included taxa were listed for each group, the defining characters for the subgroups were not discussed. An examination of illustrations for the species and representative specimens from the subgroups, suggests that the majority of species in the *M. bilineata* species group do have a very coherent "gestalt" similarity, although individual species may vary somewhat from this idealized form. These characters apply especially to the *M. bilineata*, *enchrysa*, and *wygodzinskii* subgroups of Sykora (including the majority of species), all of which have a very consistent morphological pattern. The illustration of *M. wygodzinskii* (Fig. 34) can be used to point out the characters uniting this group. Character similarities include the following: A more or less elongate tergum X (as suggested by Flint), usually with the mesal margin characteristically notched (as in Fig. 34B), although sometimes more deeply divided; the presence of sclerotized and setose ventral lobes on tergum X, bordering the dorsal phallic spine; an angulate ventral margin of the dorsal phallic spine, articulating with a sclerotized process on the phallicata [the process usually without dorsolateral processes acting as guides for the paramere appendages (*M. roldani* Flint an exception)]; a dorsal phallic spine that is sharply upturned apically and also has it apex rounded, as viewed laterally; a characteristic shape of segment IX, with the anteroventral margin produced and with the posterior margin distinctly angulate in its dorsal 1/2.

Primary differences between the *M. bilineata* and *enchrysa* subgroups seem to be based largely on color. A number of the species in the *M. bilineata* subgroup of Sykora have the forewing distinctively marked with 2 wing bars, 1 at the anastamosis, as is common in *Mortoniella*, and another more proximal band (a unique character within *Mortoniella*). This contrasts with the distinctive color of the *M. enchrysa* group, with males uniformly golden in color (another unique character within *Mortoniella*), without any apparent wing bands, and with the membrane of the wing, beneath the golden setae, darkened or fuscous. Several of the species in the *M. bilineata* subgroup were described from pharate pupae or from alcohol, making it difficult to determine the original color of

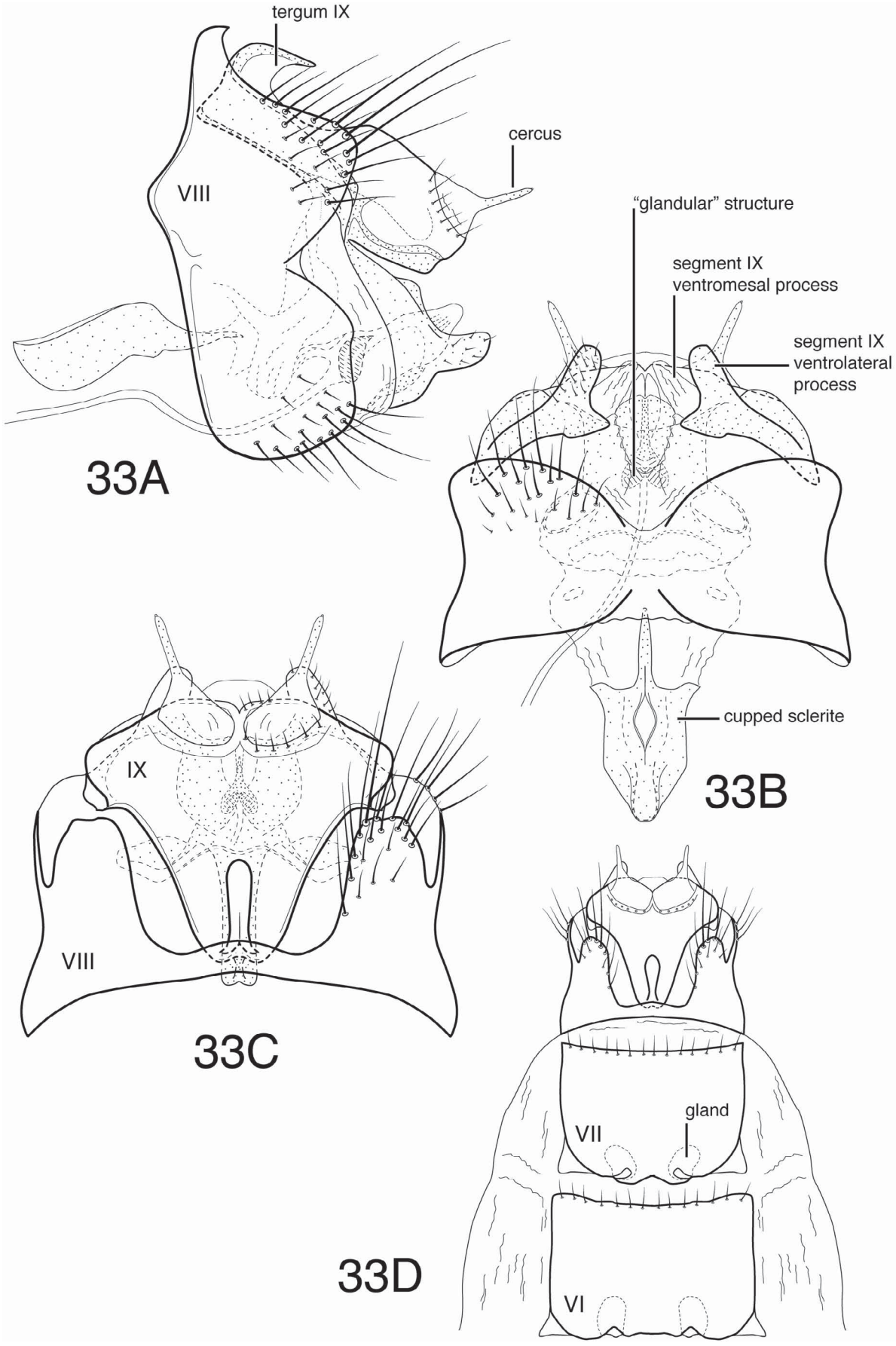


FIGURE 33. *Mortoniella bilineata* Ulmer, female genitalia: A—lateral; B—ventral; C—dorsal: D— glands of terga VI and VII, dorsal.

the wings, including *M. angulata* Flint, *M. apiculata* Flint, and *M. hodgesi* Flint. Species with 2 wing bands include *M. bilineata* Ulmer, *M. roldani* Flint, *M. similis* Sykora, *M. chicana* Sykora, and *M. iridescens* Flint, the first 3 with dark wings and white bands, *M. chicana* with light brown wings and white bands, and *M. iridescens* with dark wings and iridescent bands, only visible at some light angles. The only species placed in the *M. enchrysa* subgroup are *M. enchrysa* and *M. paraenchrysa*, although Flint (1996) recorded 2 additional undescribed species from Peru. Based on color considerations, and also genitalic characters, *M. denticulata* Sykora, which Sykora placed in his *M. flinti* subgroup, should probably be moved to the *M. enchrysa* subgroup. Males are nearly golden in color, without wing bars, and females have an indistinct or incomplete wing bar at the usual position, indicating the probable ancestral state for the group. Similarly, *M. paralineata*, which Sykora described in the *M. bilineata* subgroup, is described as being yellow with a fuscous wing membrane, suggesting its probable placement in the *M. enchrysa* subgroup. *Mortoniella squamata* Sykora, 1999, which Sykora placed in the *M. bilineata* subgroup, is described as being golden beige and unmarked, or not strictly conforming to either species group based on color considerations. Similarly, *Mortoniella foersteri* (Schmid, 1964) is discussed as being dark with a single white wing band. Although the *M. enchrysa* subgroup seems to represent a monophyletic assemblage, based on color considerations, monophyly of the entire *M. bilineata* group needs to be more clearly demonstrated.

The *M. flinti* group of Sykora, as originally conceived, is quite heterogeneous and species differ significantly from the 3 species subgroups discussed above. With *M. denticulata* removed, only 4 species remain. We have not directly examined any of these species, although we have examined specimens of a species from Venezuela that is apparently very closely related to *M. bifurcata* Sykora, or possibly conspecific. It differs from the species discussed above in lacking an angulate ventral margin of the dorsal phallic spine and also a somewhat different overall structure of the dorsal phallic spine, as well as lacking an angulate posterior margin to segment IX. In most other respects, however, including the general structure of tergum X and also female genitalia with a deeply incised tergum VIII, it is characteristic of the *M. bilineata* species group. We believe that it is correctly placed here and that this will also prove to be true for *M. flinti* Sykora and *M. quinas* Harper & Turcotte. Based on genitalic considerations, we suspect that *M. santiaga* Sykora may not only not be a member of the *M. flinti* subgroup, but may be misplaced in the *M. bilineata* species group. However, this needs to be confirmed. *Mortoniella wygodzinskii*, the only species placed by Sykora in his *M. wygodzinskii* group, is discussed below in the redescription of that species. Morphologically it is very similar to the *M. bilineata* and *enchrysa* subgroups, but lacks the distinctive color attributes of either subgroup and has some peculiar morphological distinctions of its own.

Based on genitalic considerations, *M. argentinica*, type species of the *M. argentinica* subgroup of Sykora, is being removed from the *M. bilineata* species group, as discussed in the species description for that species in the section on 'species unplaced to species group'. Both the overall form of the male genitalia, and also that of the female, more closely resemble species in the *M. leroda* species group. The only other species "speculatively" placed in the *M. argentinica* subgroup by Sykora is *M. unilineata* Sykora, which we believe may also be misplaced in the *M. bilineata* species group. However, this also needs verification. It appears that these species may have been placed in the *M. bilineata* group based mainly on venational considerations, which as discussed above, may be plesiomorphic.

***Mortoniella wygodzinskii* (Schmid, 1958)**

Fig. 34

Mexitrichia wygodzinskii Schmid, 1958: 194; Flint 1963: 465 [possibly a species of *Mortoniella*]; Knutson & Flint 1979: 32 [Empididae predators in pupal cocoons].

Mortoniella wygodzinskii (Schmid); Sykora 1999: 385 [*M. wygodzinskii* group; distribution]; Rueda & Gibon 2008: 223 [illustration]; Blahnik & Holzenthal 2008: 70 [*M. bilineata* species group].

This is a very distinctive species characterized especially by the very inflated tergum X, the elongate projections of the inferior appendages, and the very short, perhaps vestigial, paramere appendages. Wing color is uniform and brown, without an evident cross bar; the setae of the wings are somewhat modified, flattened and compressed, but not quite approaching a state where they would be called scale-like. Although placed by Sykora in its own group, the genitalic characters fit very well with species in either the *M. bilineata* or *enchrysa* subgroups. It is the only confirmed member of the *M. bilineata* species group for the region covered, although *M. paraenchrysa* is known from Bolivia. *Mortoniella wygodzinskii* has a very wide distribution; the specimen illustrated is from Venezuela.

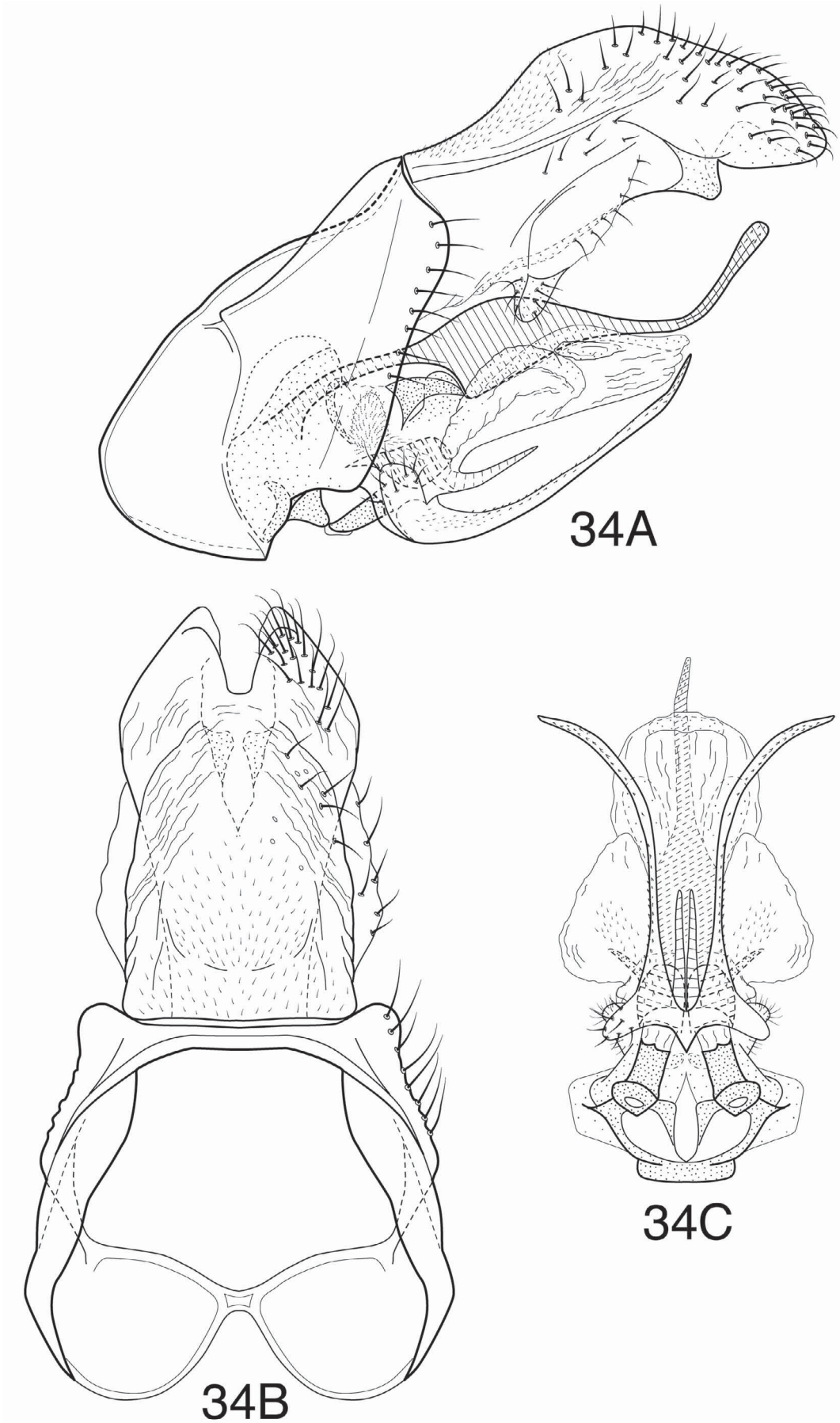


FIGURE 34. *Mortoniella wygodzinskii* (Schmid), male genitalia: A—lateral; B—segment IX and tergum X, dorsal; C—phallic ensemble, ventral.

Adult. Length of forewing: male 4.4 mm. Forewing with forks I, II, and III present, hind wing with forks II, III, and V. Spur formula 0:4:4. Overall color medium brown. Legs same color, tibial spurs darker, contrasting with legs. Wing without distinct bar at anastamosis; setae of wings slightly flattened.

Male genitalia. Ventral process of segment VI posteriorly projecting, short, narrow basally, length subequal to width at base. Segment IX rounded anterolaterally, length greatest in ventral 1/2, posterolateral margin with moderately angular projection in dorsal 1/2, also abruptly, angularly narrowed ventrally; segment deeply excised dorsomesally and ventromesally, forming lateral lobes, lobes separated dorsomesally by more than 1/2 width of segment. Tergum X elongate, bulbously inflated, with narrow mesal excision, extending less than 1/4th length; apical lobes, as viewed dorsally, bluntly rounded, as viewed laterally, more broadly rounded; ventromesally with strongly sclerotized, preapical projections, very narrowly separated mesally, and membranously connected, setose lobes, opposing dorsal phallic spine on either side. Inferior appendages with short, setose basal lobes and elongate, narrow, posteriorly-directed ventral projections, curved outward apically. Mesal pockets of fused inferior appendages with moderately elongate, spine-like, posteriorly-directed apicoventral projections. Paramere appendages very short, sclerotized, acute apically (possibly vestigial). Phallotheca with evident, rounded, laterally compressed, dorsomesal apodeme. Dorsal phallic spine, as viewed dorsally, broad in middle, narrowed apically; as viewed laterally, greatly narrowed in basal and apical parts, very bulbously inflated in middle, strongly upturned in apical 1/4th, apex rounded; ventral margin distinctly angulate, articulating with rounded projection on phallicata. Phallicata with distinctly sclerotized basodorsal projection and lightly sclerotized, rounded, depressed, lateral lobes, partially microsetose on ventral surface. Endophallic membrane lightly sclerotized dorsally, simple in structure, without evident spines; phallotremal spines absent.

Material examined. **VENEZUELA: Truillo:** Quebrada Potrerito, 7.5 km NE Boconó, 9°16'26"N, 70°13'06"W, 1530 m, 29-30.iv.1995, Holzenthal, Cressa, Gulic — 1 male (UMSP).

Distribution. Argentina, Bolivia, Ecuador, Venezuela.

Species unplaced to species group

We have left the following 3 species unplaced in any of the 4 major species groups recognized for *Mortoniella*. *Mortoniella argentinica* is being removed from the *M. bilineata* species group, despite having a hind wing with 3 forks and also an elongate, narrow ventral process on segment VI, as in members of that group. In most other respects it closely conforms to species in the *M. leroda* species group, as discussed in the diagnosis for the species below. It seems likely that its venational and ventral process characters are primitive characters, and that it is actually a basal species in the *M. leroda* species group. However, we are deferring placing it there until a more formal phylogenetic study is completed. It is apparently closely related to *M. spinulata* (Flint), a species described from Colombia in the genus *Mexitrichia* and subsequently placed in the *M. leroda* species group of *Mortoniella* (Blahnik & Holzenthal 2008). Consequently, we are also removing *M. spinulata* from the *M. leroda* species group and listing it as *incertae sedis* as to species group.

In the other 2 species from of the austral region of South America that have been left *incertae sedis* as to species group, *M. guairica* and *M. meloi*, n. sp., the ventral process of segment VI is short, as in members of the *M. leroda* group, and we believe that this also represents the most probable placement for both of these species. However, in neither species is the anterior margin of segment IX uniformly rounded (as viewed laterally), nor are the lateral lobes of segment IX narrowly separated dorsomesally, characters that otherwise typify the *M. leroda* species group. It is for the latter reason that we have left these species unplaced as to species group. Despite some similarities between the species, as in the strongly upturned dorsal phallic spine and short phallicata, their differences preclude grouping them together. *Mortoniella meloi* has several other characters that suggest a possible relationship to *M. atenuata* (Flint, 1963) and *M. leei* (Flint, 1974), which form a distinctive subgroup within the *M. leroda* species group of *Mortoniella* (referred to here as the *M. atenuata* subgroup). Character similarities include a tergum X with a distinct ventromesal sclerite extending from the dorsolateral lobes, a similarity in the shape of tergum X and its apicomesal incision, a well-developed anterolateral apodeme on tergum VIII and apparently also a rather extensive membranous region connecting terga VIII and IX, and also a much enlarged phallotremal sclerite with large apical spines. Unfortunately, neither of these unplaced species has associated female specimens, which have proved very useful in assigning species to the major species groups.

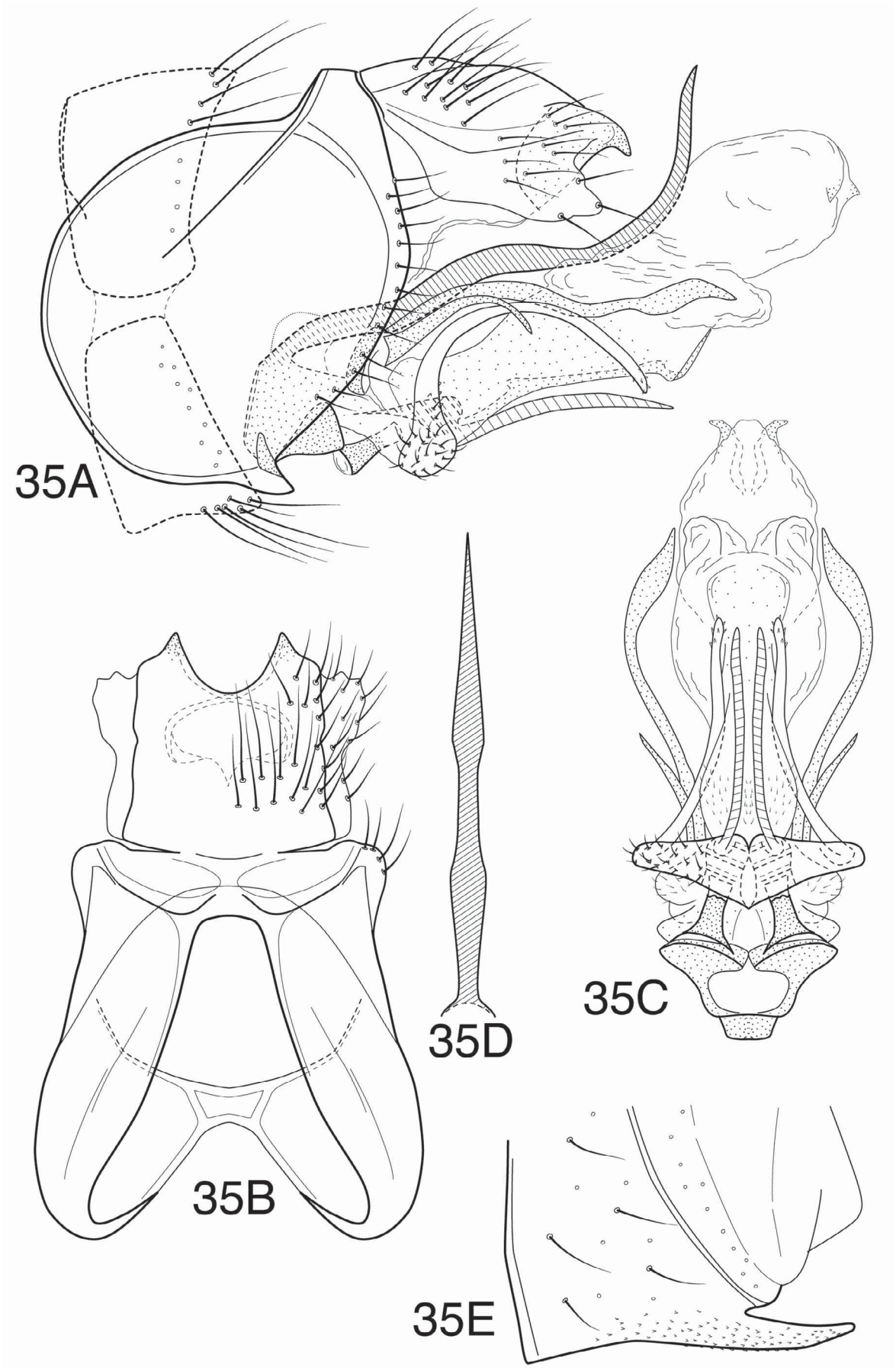


FIGURE 35. *Mortoniella argentinica* Flint, male genitalia: A—lateral; B—segment IX and tergum X, dorsal; C—phallic ensemble, ventral; D—dorsal phallic spine, dorsal; E—ventral process of segment VI, lateral.

Mortoniella argentinica Flint, 1974
Figs. 35, 39

Mortoniella argentinica Flint, 1974: 13; Sykora 1999: 386 [*M. argentinica* group]; Rueda & Gibon 2008: 223 [illustration]; 224 [distribution]; Blahnik & Holzenthal 2008: 70 [*M. bilineata* species group].

Despite having a hind wing with 3 forks and also a narrow, elongate ventral process on segment VI, as in members of the *M. bilineata* species group, in most other respects this species is typical of species in the *M. leroda* species group. The anterior margin of segment IX is uniformly rounded, as viewed laterally, and the lobes of the segment are narrowly divided dorsomesally. Moreover the general structure of tergum X, with a U-shaped mesal excision, strongly angled apicolateral lobes, and setation (basal setae much longer than the apical ones), are also typical of the *M. leroda* species group. Additionally, the female genitalia (not illustrated), with tergum VIII unincised and tergum IX very short, also seems to be typical of this group. In other respects, this is a very distinctive species, unlikely to be confused with any other described species. Especially distinctive characters are the elongate, narrow, curved inferior appendages, the elongate lance-like processes from the mesal pockets of the fused inferior appendages, and the presence of 2 pairs of paramere appendages. In all of these respects the species resembles *M. spinulata* (Flint), which is its most probable sister species. *Mortoniella spinulata* differs in having elongate spines on the inferior appendages and also in having a much modified tergum X, with a very narrow apical incision and also in having the dorsal phallic spine greatly narrowed apically. Like *M. argentinica*, *M. spinulata* has 3 forks in the hind wing, but has a ventral process of segment VI more characteristic of the *M. leroda* species group.

Adult. Length of forewing: male 4.0-4.8 mm, female 4.6 mm. Forewing with forks I, II, and III present, hind wing with forks II, III, and V. Spur formula 0:4:4. Overall color dark brown. Legs same color, tibial spurs somewhat darker than legs, but not strongly contrasting in color. Wing bar at anastamosis indistinct, discontinuous, most strongly marked with whitish setae near arculus on anal margin.

Male genitalia. Ventral process of segment VI posteriorly projecting, narrow, elongate, length about twice width at base (Fig. 35E). Segment IX nearly evenly rounded anterolaterally, length greatest midlaterally, posterolateral margin convexly rounded, narrowing ventrally; segment deeply excised dorsomesally and ventromesally, forming lateral lobes, lobes separated dorsomesally by much less than 1/2 width of segment. Tergum X with U-shaped mesal excision, extending less than 1/2 length of tergum, and distinctly projecting lateral lobes; lateral lobes acute apically, as viewed both dorsally and laterally. Inferior appendages short basally, with elongate, narrow, posteriorly arched, dorsolateral lobes; lobes with short papillae or papillate-like structures at apex and usually also at base. Mesal pockets of fused inferior appendages with apical processes very elongate, lance-like, posteriorly directed. Paramere appendages apparently with 2 processes on each side; 1 pair elongate, narrow, distinctly bowed outward in apical 1/2, slightly widened preapically, apex acute; 2nd pair short, ventrally curved, narrowing apically, apex very narrow and acute. Dorsal phallic spine, as viewed laterally, more or less uniform in width, distinctly sinuously undulate in contour, apical 1/3rd strongly upturned; in dorsal view, narrow throughout, apex narrowly acuminate. Phallicata moderately elongate, tubular, without dorsal processes, ventral margin lightly sclerotized. Endophallic membrane somewhat ballooned, simple in structure, without distinct lateral or ventral spines; phallotremal spines very short, curved outward.

Material examined. **ARGENTINA: Catamarca:** N. Aconquija, 1-2.x.1968, LE Peña G. — 1 male, 1 female (paratypes) (NMNH); **Tucuman:** Rt. 307, 7 km W. Acheral, 11.x.1973, OS Flint, Jr., — 7 males (NMNH, UMSP).

Distribution. Argentina.

Mortoniella guairica (Flint, 1974)
Fig. 36

Mexitrichia guairica Flint, 1974: 12.
Mortoniella guairica (Flint); Blahnik & Holzenthal 2008: 70 [*incertae sedis* as to species group].

This is a very distinctive species. It bears a general resemblance to members of the *M. leroda* group. However unlike members of that group, the lateral contour of the anterior margin segment IX of the male is widest in its ventral 1/2 and the lobes of the segment are widely separated dorsomesally. Other diagnostic features of the species

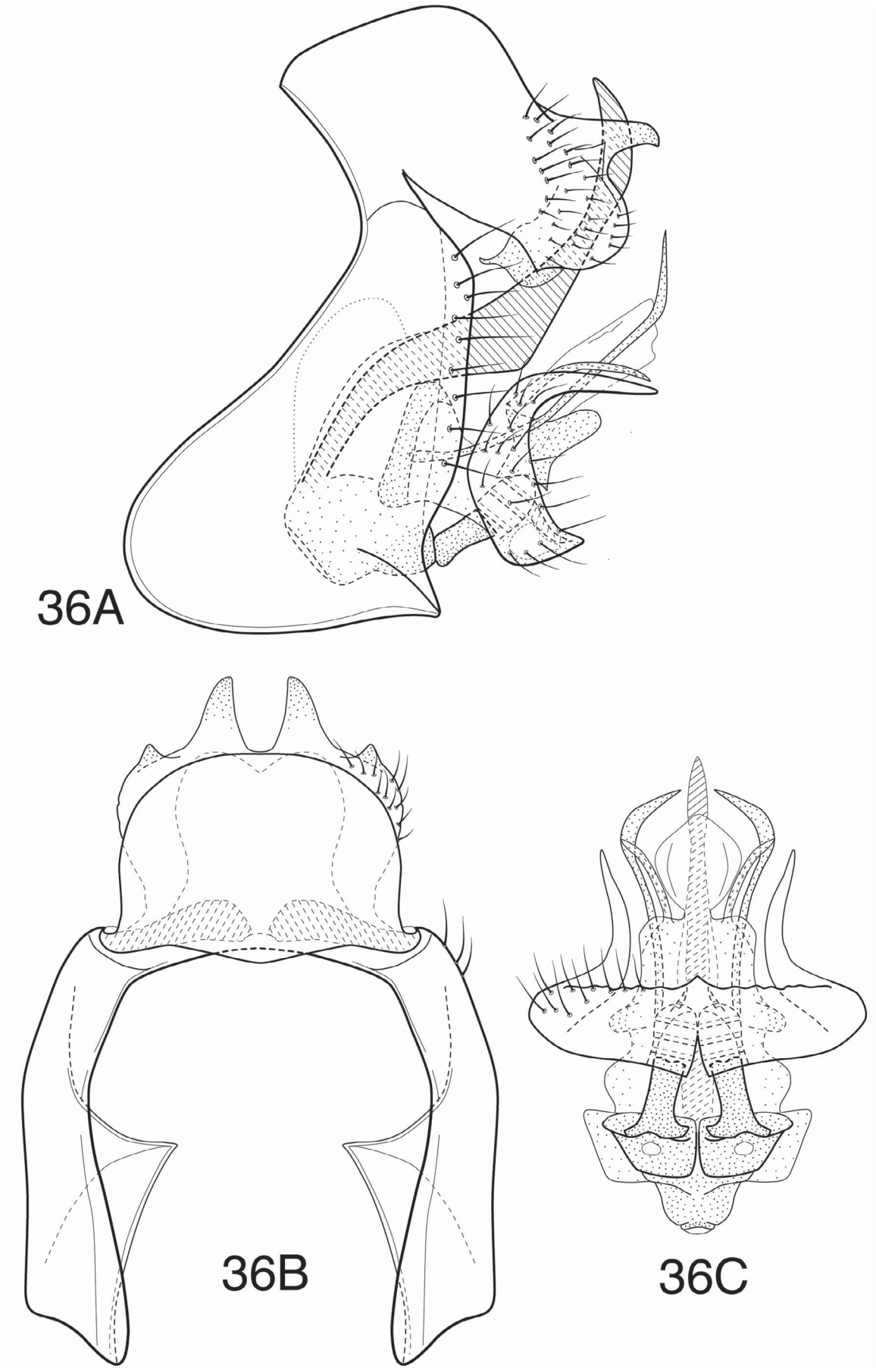


FIGURE 36. *Mortoniella guairica* (Flint), male genitalia: A—lateral; B—segment IX and tergum X, dorsal; C—phallic ensemble, ventral.

include the sharply upturned and apically recurved dorsal phallic spine; the shape of the inferior appendages, which have the dorsal lobes sharply posteriorly curved; the shape of tergum X, which has its basal part inflated and apical lobes narrowly separated; and the very short phallicata and endotheca. The dorsolateral processes of the phallicata are also distinctive in being elongate and narrow.

Adult. (specimen totally cleared) Length of forewing: male 2.5 mm. Venation not discernible. Spur formula 0:4:4 (probably).

Male genitalia. (Genital capsule separated from abdomen). Ventral process of segment VI very small, laterally compressed, ventrally projecting, subtriangular, widest basally, acute apically. Segment IX concavely rounded anterolaterally, sinuously produced and length greatest in ventral 1/2; segment deeply excised dorsomesally and ventromesally, forming lateral lobes, lobes separated dorsomesally by more than 1/2 width of segment, lobes discontinuous ventrally (probably broken). Tergum X very greatly inflated and rounded basally; apicomesal incision relatively short, narrow, U-shaped, forming projecting, acute, apicodorsal lobes; ventrolateral margin rounded, setose; tergum ventromesally with pair of converging, sclerotized, anteriorly-curved lobes. Inferior appendages very short, with only slight ventromesal projection, dorsally with relatively elongate, tapering, apically acute lobes, each strongly posteriorly bent at about midlength. Mesal pockets of fused inferior appendages with apical processes short, posteroventrally curved. Paramere appendages intermediate in length (shorter than dorsal phallic spine), very narrow, uniform in width, apices acute and slightly upturned. Dorsal phallic spine, as viewed laterally, widened in middle, obtusely angled upward from ventral margin, dorsal margin gradually curved, apical part nearly vertical in orientation, apex acute, slightly reflexed. Phallicata with very narrow, pencil-like dorsolateral processes, ventral margin weakly sclerotized, slightly projecting. Endophallic membrane very short, simple in structure, without ventromesal spine; phallotremal spines absent.

Material examined. **PARAGUAY:** Salto del Guaira, 24°02'S, 054°16'W, 4.xii.1971, L E Peña G - 1 male (holotype, alcohol, USNM type # 72741) (NMNH).

Distribution. Paraguay

Mortoniella meloi, new species

Fig. 37

This species is very distinctive and unlikely to be confused with any other species of *Mortoniella*. The nearly straight anterior margin of segment IX and synsclerous posterior margin of segment VIII are especially distinctive. *Mortoniella meloi* is also characterized by having slightly widened, but not exactly scale-like, setae along the costal margin of the forewings of the male, and on abdominal segments anterior to segment VIII.

Adult. Length of forewing: male 3.5 mm. Forewing with forks I, II, and III present, hind wing with fork II only. Spur formula 0:4:4. Overall color grayish-brown. Wing bar at anastamosis scarcely evident, marked only by whitish-brown setae at arculus on hind margin.

Male genitalia. Ventral process of segment VI short, laterally compressed, ventrally projecting, bluntly rounded apically, slightly narrowed basally from anterior margin (Fig. 37E). Segment VIII more or less synsclerous (more distinctly so on posterior margin); tergum with pronounced anterolateral apodemes. Segment IX very short, anterior margin nearly straight, posterior margin curved, narrowing dorsally; segment excised dorsomesally and ventromesally, forming lateral lobes, lobes separated dorsomesally by more than 1/2 width of segment, lobes convergent ventrally and very narrowly joined. Tergum X short; apicomesal incision relatively narrow, U-shaped, forming projecting, acute, apicodorsal lobes; ventrolateral margin subtruncate, setose; tergum ventromesally with convergent, mesally-fused, sclerotized, anteriorly-curved lobes. Inferior appendages very short, with short, paired, acute ventromesal projections, dorsally with short, subacute, outwardly-flared lobes, Mesal pockets of fused inferior appendages with apical processes short, dorsally curved. Paramere appendages relatively elongate (extending about as far as dorsal phallic spine), narrow, uniform in width, apices acute. Dorsal phallic spine, as viewed laterally, more or less uniform in width, strongly dorsally oriented, apical 1/4th very sharply bent, apex acute and somewhat reflexed. Phallicata with sclerotized dorsolateral processes, each concavely curved to accommodate paramere appendage. Endophallic membrane very short, simple in structure; phallotremal sclerite composed of short mesal spine and 2 longer, diverging, lateral spines (possibly fused phallotremal spines).

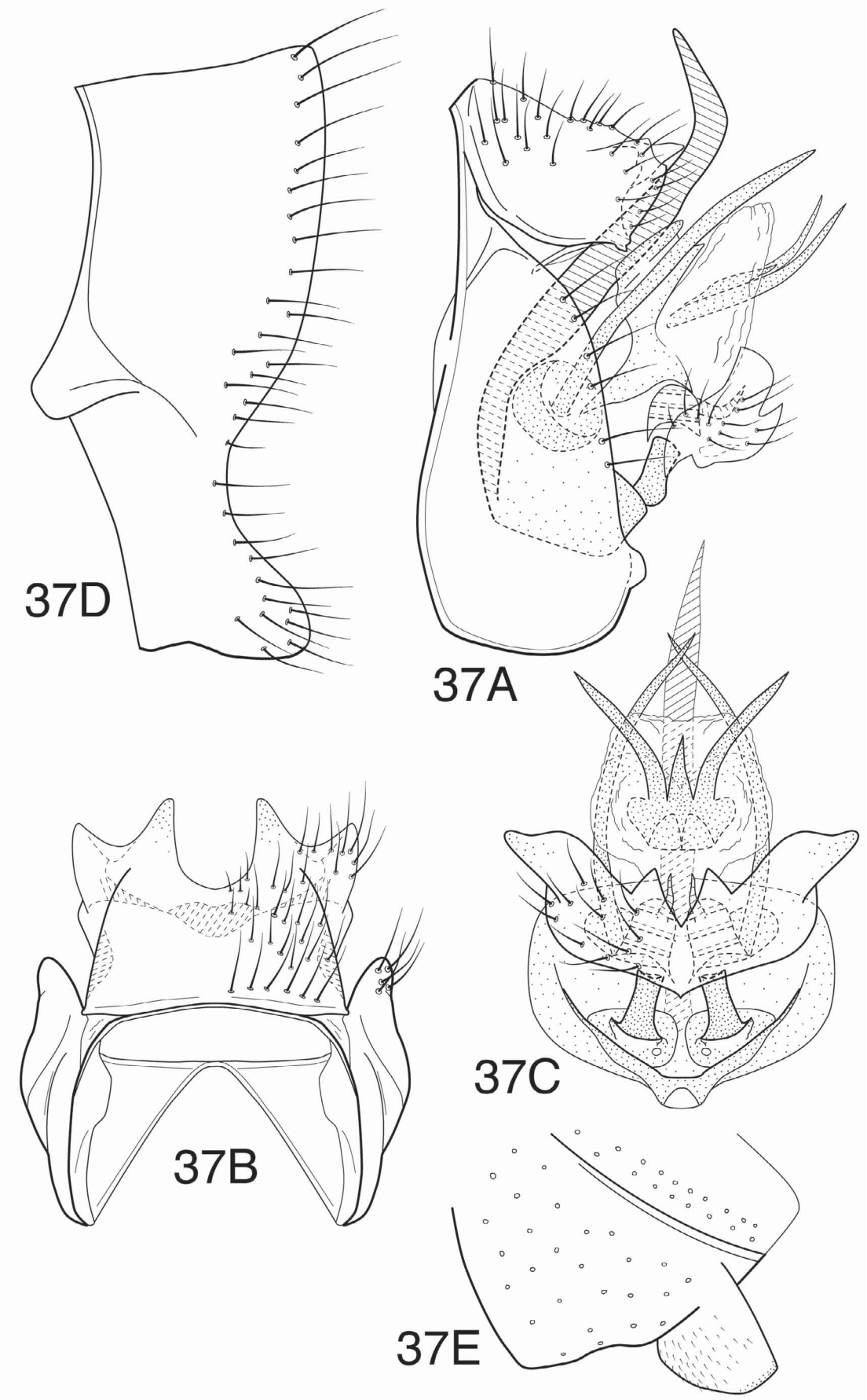
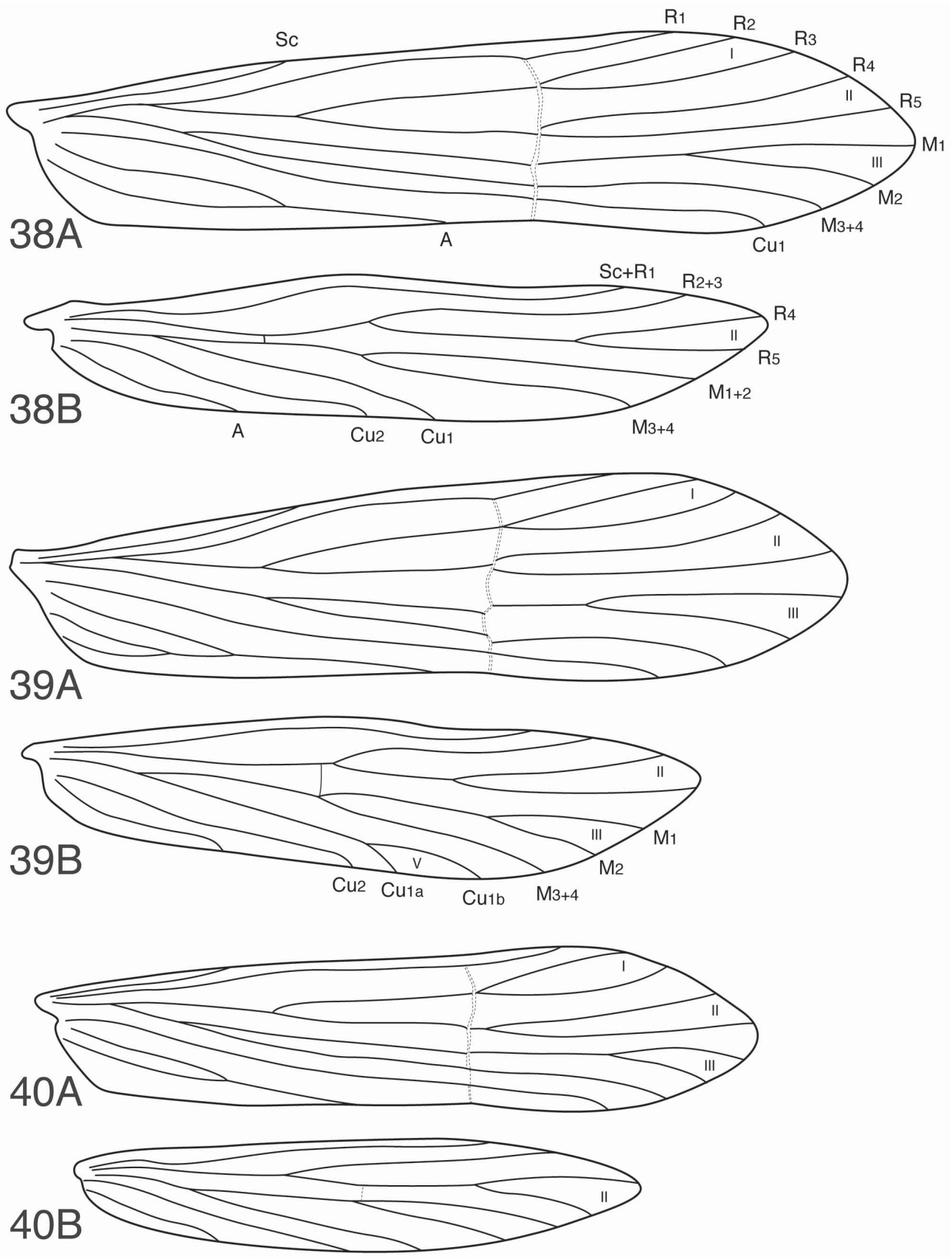


FIGURE 37. *Mortoniella meloi*, new species, male genitalia: A—lateral; B—segment IX and tergum X, dorsal; C—phallic ensemble, ventral; D—segment VIII, lateral; E—ventral process of segment VI, lateral.



FIGURES 38–40. Wings of exemplar species: **38**, *Mortoniella albolineata* Ulmer: A—forewing; B—hind wing. **39**, *Mortoniella argentinica* Flint: A—forewing; B—hind wing. **40**, *Mortoniella froehlichi*, new species: A—forewing; B—hind wing.

Holotype male: BRAZIL: São Paulo: Parque Estadual Intervales, Rio do Carmo, 24°18'59"S, 048°25'15"W, 560 m, 29.ix.2002, Blahnik, Prather, Melo & Calor (UMSP000088168) (pinned) (MZUSP).

Etymology. We are very pleased to name this species *M. meloi* for Adriano Melo, who helped to collect the type specimens, in gratitude for the assistance he rendered during our collecting efforts in Brazil.

Key to males of austral South American *Mortoniella*

1 Ventral process of segment VI narrow basally, posteriorly directed; length usually 2 or more times width at base (if relatively short, then still distinctly narrow basally and posteriorly directed) (Figs. 23E, 27E) 2

— Ventral process of segment VI wider basally, length less than 2 times width at base (generally more or less subequal to width at base); process usually distinctly ventrally directed, subtriangular (Fig. 5E) or short and rounded apically (Fig. 15E), exceptionally somewhat posteriorly directed and length about 2 times width at base, but relatively wide basally and narrowed and subacute apically as in Fig. 22E (*M. leroda* species group and unplaced species) (*M. armata*, couplet 4, placed here presumptively) 4

2(1) Size larger (forewing usually more than 4 mm.); hind wing with forks II, III and V present (Fig. 39B) **(***M. bilineata* species group and unplaced species *M. argentinica*) 34

— Size smaller (forewing usually less than 3 mm.); hind wing with fork II only (Fig. 40B) 3

3(2) Rod-like appendages of phallotheca short and accompanying pockets not conspicuously enlarged (Fig. 26A) (*M. ormina* group) 29

— Rod-like appendages of phallotheca elongate and inflated apically, accompanying pockets very bulbously enlarged (Fig. 27A) (*M. velasquezi* group) 32

Mortoniella leroda group (and unplaced species)

4(1) Dorsal phallic spine trifurcate apically (Jacquemart 1963, fig. 7) . . . . . ***M. armata* (Jaquemart).**

— Dorsal phallic spine simple, undivided, not trifurcate apically (Fig. 1A) 5

5(4) Segment IX with anterior margin more or less evenly rounded in lateral view (Fig. 1A) (*M. leroda* group) 7

— Segment IX with anterior margin either distinctly produced in ventral 1/2 (Fig. 36A), or nearly straight (Fig. 37A) (unplaced species) 6

6(5) Segment IX with anterior margin distinctly produced in ventral 1/2 (Fig. 36A) . . . . . ***M. guairica* (Flint).**

— Segment IX with anterior margin nearly straight (Fig. 37A) . . . . . ***M. meloi*, n. sp.**

7(5) Phallic ensemble (apparently) with 2 pairs of elongate lateral appendages (1 pair of paramere appendages and 1 pair of appendages emerging from dorsolateral margin of phallicata, Figs. 19A, 19C, 22A, 22C); endophallic membrane without ventromesal spine (Figs. 19A, 22A) 8

— Phallic ensemble with only 1 pair of lateral (paramere) appendages; endophallic membrane with distinct, sclerotized ventromesal spine (Fig. 1A) [absent only in *M. truncata*, n.sp.] 9

8(7) Tergum X with apicomesal margin convexly rounded, not notched (Fig. 22B); apex of dorsal phallic spine weakly notched (bifid) in dorsal view (Fig. 22C) (*M. punensis* subgroup) . . . . . ***M. punensis* (Flint).**

— Tergum X with apicomesal margin incised (Fig. 19B); dorsal phallic spine, in lateral view, with enlarged rounded protrusion at inflection point (Fig. 19A) (*M. pocita* subgroup) . . . . . ***M. pocita* (Flint).**

9(7) Inferior appendages short, without distinct, upright dorsolateral projections (Fig. 20A); dorsal phallic spine very inflated in middle (lateral view) (Fig. 20A); tergum X shallowly notched apicomesally (Figs. 20B, 21B) (*M. pumila* subgroup) 10

— Inferior appendages with very apparent upright dorsolateral projections (Fig. 1A); dorsal phallic spine usually either not or much less inflated in middle (lateral view) (Fig 1A); tergum X more deeply incised apicomesally (Figs. 1B, 17B) (*M. albolineata* subgroup). 11

10(9) Paramere appendages elongate, as long as or longer than dorsal phallic spine (Fig. 20A); tergum X with apicomesal margin very weakly notched (Fig. 20B); apicolateral seta of tergum X not on finger-like process (Figs. 20A, B) . . . ***M. pumila*, n. sp**.

— Paramere appendages short, distinctly shorter than dorsal phallic spine (Fig. 21A); tergum X with apicomesal margin more distinctly notched (Fig. 21B); apicolateral seta of tergum X on distinct finger-like process (Figs. 21A, B) . . . . ***M. pusilla*, n. sp.**

Mortoniella albolineata subgroup

11(9) Inferior appendages with narrow, elongate, apically acute, ventromesal process, usually asymmetrically developed (Figs. 15A, C) 12
— Inferior appendages without ventromesal process (Fig. 2C), or ventromesal process very short (Fig. 17C) 18

12(11) Apicolateral projections of tergum X very elongate, acute (Figs. 9A,B); apex of dorsal phallic spine recurved downward (Fig. 9A) . . . . . ***M. intervales*, n. sp.**
— Apicolateral projections of tergum X much shorter (Figs. 15A, B); apex of dorsal phallic spine upturned (Fig. 15A) 13

13(12) Apex of dorsal phallic spine widened in lateral view, crescent-shaped (Figs. 5A, D) . . . . . ***M. crescentis*, n. sp.**
— Apex of dorsal phallic spine not widened in lateral view, not crescent-shaped (Fig. 8A) 14

14(13) Apex of dorsal phallic spine sharply upturned and covered with minute spines (Fig. 8A); apicolateral projections of tergum X truncate in lateral view (Fig. 8A) . . . . . ***M. hystricosa*, n. sp.**
— Apex of dorsal phallic spine without minute spines; apicolateral projections of tergum X not truncate in lateral view 15

15(14) Endophallic membrane with short curved spine (Fig. 15A); paramere appendages somewhat widened preapically (Fig. 15A) 16
— Endophallic membrane with very prominent spine, curved or not (Figs 3A, 6A); paramere appendages nearly uniform in width throughout length (Figs. 3A, 3C, 6A, 6C) 17

16(15) Dorsal phallic spine very distinctly widened in middle, as viewed dorsally (Fig. 10D); tergum X with mesal excision wider, more U-shaped (Fig. 10B) . . . . . ***M. latispina*, n. sp.**
— Dorsal phallic spine not or only slightly widened in middle, as viewed dorsally (Fig. 15D); tergum X with mesal excision more V-shaped (Fig. 15B) . . . . . ***M. teutona* (Mosely).**

17(15) Paramere appendages distinctly shorter than dorsal phallic spine (Figs. 6A,C); spine of endophallic membrane nearly straight, dagger-like (Fig. 6A) . . . . . ***M. dolonis*, n. sp.**
— Paramere appendages elongate, as long as or longer than dorsal phallic spine (Figs. 3A,C); spine of endophallic membrane distinctly curved (Fig. 3A) . . . . . ***M. albolineata* Ulmer.**

18(11) Paramere appendages unequal in length and differing in orientation, left one distinctly shorter than right (Figs. 4A, C) 19
— Paramere appendages equal in length and symmetrically oriented (Figs. 2A, C) 20

19(18) Tergum X with apicolateral processes truncate, as viewed dorsally (Fig. 16B) . . . . . ***M. truncata*, n. sp.**
— Tergum X with apicolateral processes subacute, as viewed dorsally (Fig. 4B) . . . . . ***M. asymmetris*, n. sp.**

20(18) Dorsolateral processes of phallicata forming elongate, downward bent, arm-like processes (Figs. 2A, D) . . . . ***M. agosta*, n. sp.**
— Dorsolateral processes of phallicata prominent (Figs. 18A, C) or not (Figs. 1A, D), but not forming elongate arm-like processes 21

21(20) Paramere appendages elongate, as long as or longer than dorsal phallic spine (Figs. 1A, 13A) [*M. paraunota*, with paramere appendages somewhat intermediate in length, treated under both couplets] 22
— Paramere appendages relatively short, distinctly shorter than dorsal phallic spine (Figs, 7A, 17A) 24

22(21) Tergum X with apicolateral projections separated by very wide U-shaped mesal invagination (Fig. 1B); apex of dorsal phallic spine, in dorsal view, rounded (Fig. 1D) . . . . . ***M. acauda*, n. sp.**
— Tergum X with apicolateral projections separated by narrower U-shaped or V-shaped mesal invagination (Figs. 13B, 14B); apex of dorsal phallic spine, in dorsal view, narrow, acute (Fig. 13D, 14D) 23

23(22) Dorsolateral projections of inferior appendage rounded apically (Fig. 13A); dorsal phallic spine, as viewed dorsally, not distinctly widened in apical 1/2 (Fig. 13D) . . . . . ***M. parauna*, n. sp.**
— Dorsolateral projections of inferior appendage subacute apically (Fig. 14A); dorsal phallic spine, as viewed dorsally, very distinctly widened in apical 1/2 (Fig. 14D) . . . . . ***M. paraunota*, n. sp.**

24(21) Spine of endophallic membrane very elongate and prominent (Fig. 11A) . . . . . ***M. longispina*, n. sp.**
— Spine of endophallic membrane short or only moderately elongate (Figs. 7A, 17A) 25

25(24) Dorsal phallic spine, in dorsal view, with apex abruptly narrowed (laterally compressed) (Figs. 17D; 18D); apex, in lateral view, widened and blade-like (Figs. 17A, 18A) 26
— Dorsal phallic spine, in dorsal view, with apex not abruptly narrowed (Fig. 7C); apex, in lateral view, tapered and acute, not blade-like (Fig. 7A) . . . . . ***M. guahybae*, n. sp.**

26(25) Apices of lateral lobes of inferior appendage at least somewhat posteriorly recurved apically (Figs. 12A, 17A); paramere appendages short (Figs. 12A, 17A); dorsal phallic spine strongly inflected (Figs. 17A, 12A); endophallic membrane without dorsolateral flanges 27

— Apices of lateral lobes of inferior appendage not recurved (Fig. 14A); paramere appendage more elongate (Fig. 14A); dorsal phallic spine less inflected (Fig. 14A); endophallic membrane with lightly sclerotized dorsolateral flanges (Figs. 14A, C) . . . . . ***M. paraunota*, n. sp.**

27(26) Inferior appendages with apices of lateral lobes very distinctly posteriorly recurved (Fig. 17A); dorsolateral processes of phallicata more or less rounded (Fig. 17A) . . . . . ***M. unota* (Mosely).**

— Inferior appendages with apices of lateral lobes, each with only short, bent process (Fig. 12A); dorsolateral processes of phallicata prominent, ovate or elongate in shape (Figs. 12A, 18A) 28

28(27) Dorsolateral processes of phallicata thick and enlarged; dorsal phallic spine very strongly bent, apex somewhat anteriorly recurved (Fig. 12A) . . . . . ***M. paraguaiensis*, n. sp.**

— Dorsolateral processes of phallicata slender, elongate (Fig. 18A); dorsal phallic spine less strongly bent, apex not anteriorly recurved (Fig. 18A) . . . . . ***M. uruguaiensis*, n. sp.**

Mortoniella ormina group

29(3) Apicolateral margin of tergum X with crescentic incision (Fig. 25A); dorsal phallic spine with apicomesal incision and usually with minute spines (Fig. 25D) . . . . . ***M. collegarum* (Rueda & Gibon).**

— Apicolateral margins of tergum X not incised (Fig. 24A); dorsal phallic spine without apicomesal incision and never with minute spines (Fig. 24D) 30

30(29) Lateral lobes of tergum X acute apically (Figs. 24A, B); dorsal phallic spine upturned, but apex not posteriorly recurved (Fig. 24A); apparently with several pairs of paramere appendages (Fig. 24A) . . . . . ***M. catarinensis* (Flint).**

— Lateral lobes of tergum X rounded apically (Figs. 23A,B); dorsal phallic spine with apex abruptly narrowed and posteriorly recurved (Fig. 23A); with only 1 pair of paramere appendages (Figs. 23A, 26A) [but with short, paired processes from the phallicata in *M alicula*, new species] (Figs. 23A, C) 31

31(30) Dorsal phallic spine with very broad T-shaped lateral projections preapically (Fig. 23D); paramere appendages very elongate and slender (Fig. 23A) . . . . . ***M. alicula*, n. sp.**

— Dorsal phallic spine only moderately widened preapically (Fig. 26D); paramere appendages short (Fig. 26A) . . . . . ***M. ormina* (Mosely).**

Mortoniella velasquezi group

32(3) Endophallic membrane with very prominent lateral sclerotized spine-like processes (Figs. 28A, C) . . . . . ***M. froehlichi*, n. sp.**

— Endophallic membrane without spine-like processes (Figs. 29A, C), or processes small and relatively inconspicuous (Figs. 27A, C) 33

33(32) Endophallic membrane with small sclerotized processes (Figs. 27A, C) . . . . . ***M. bocaina*, n. sp.**

— Endophallic membrane without sclerotized processes (Figs. 29A,C); mesal pockets and apical spines more "open" as viewed ventrally (Fig. 29C) . . . . . ***M. tripuiensis*, n. sp.**

Mortoniella bilineata group and unplaced species (*M. argentinica*)

34(2) Tergum X elongate and very greatly inflated, with short, subquadrate apicomesal incision (Figs. 34A, B); inferior appendages with elongate, narrow lateral projections, apices curved outward (Figs. 34A, C); paramere appendages very short, spine-like (Figs. 34A, C) (*M. bilineata* group) . . . . . ***M. wygodzinskii* (Schmid).**

— Tergum X not greatly inflated, with short, U-shaped apicomesal incision (Figs. 35A, B); inferior appendages each with elongate, narrow, curved dorsal process (Figs. 35A, C); 2 pairs of paramere appendages, 1 long, 1 short (Figs. 35A, C) (unplaced species) . . . . . ***M. argentinica* Flint.**

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